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THE PLUMBER AND PUBLIC APPRECIATION.

THE relation of the master plumber to the public is of vital importance. Today the disciples of Hygeia are practically as indispensable to the public as capital is to the banker. And yet, in spite of their hygienic importance to every community that boasts of progress and civilization, it appears that a large percentage of the public still continues, as of yore, to undervalue and malign the plumber.

This tendency, deplorable as it is, can be largely attributed to a peculiar fact in human psychology, namely, that people do not appreciate a desirable thing until they miss it. In other words, deprivation calls forth appreciation.

It is a notable truth that many of the world's greatest men were not duly appreciated until sometime after their decease. Then folks woke up, rubbed their eyes and realized that they had been deprived of something worth while, and they forthwith began to appreciate their loss.

We will suppose for a moment that we could turn back the wheel of progress a hundred years, and as an experiment force travelers to use the old stage-coach instead of the modern railway train, and also compel them to use the crude plumbing facilities of colonial days. A great hue and cry would go up. The sense of loss, of deprivation, would be tragic indeed. If the public had never missed the modern blessings of good transportation and good plumbing, they would miss them then. Deprived of the services of the modern plumber, they would realize as never before that much of the comfort of home had been taken away from them, and the familiar axiom, "there is no place like home," would look very sick indeed.

The daily newspaper reflects the life, habits and thoughts of the public. For years the trade has taken due note of the fact that the press of the country has reflected the public's opinion of the plumber in terms more or less uncomplimentary. The stage and the motion picture theaters have emulated the newspapers, and so the campaign of slander and ridicule against the plumber has gone merrily on.

Cartoons, jokes and funny paragraphs are to be seen and heard announcing, either directly or by inference, that the plumber is an extortionist and general all-around unprincipled craftsman.

An Indiana newspaper last winter in announcing the date of a state convention of the plumbing craft, printed a very uncomplimentary headline which called forth considerable protest from the trade. An Omaha newspaper published a cartoon some time ago, which was little short of slander and which elicited some resentment.

A number of the leading master plumbers of Omaha called upon the publisher of this newspaper, who happened to be their senator. It was forcibly explained to him that the publication of such jests would cause the public to lose confidence in their profession. They asked that jokes of this kind cease at once. The senator and publisher, profuse in his apologies, promised that a repetition of this kind would never appear in his paper.

"Domestic Engineering," as many in the trade are aware, has been carrying on a campaign to suppress the joke about the plumber. We will be glad to furnish articles educating the public regarding the plumber, the same to be published in your local newspaper. Many of these articles have been written specially for "Domestic Engineering" by governors, senators and other prominent men.

Water Supply, Plumbing and Sewage Disposal for Country Homes*

By ROBERT W. TRULLINGER,
Rural Engineer, Office of Experiment Stations

(Concluded from Page 315 in the September 11th Issue)

The Automatic Siphon.

The automatic siphon may be installed to operate as frequently as may seem desirable. Fig. 31 shows a 3 or 4 inch automatic siphon installed. The siphon operates as follows: As the liquid enters the discharge chamber its weight increases with increasing depth, and the air between the water surface in the bell and the water inside the "siphon leg" is compressed. As the water outside increases in depth the compression inside becomes

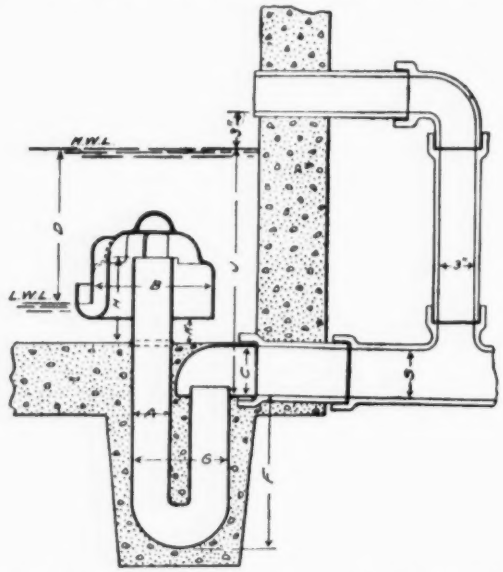


Fig. 31.—Three-Inch or Four-Inch Automatic Siphon Installed.

greater until the water outside reaches the drawing or discharge depth for the siphon. Then the inside pressure is sufficient to force the water in the siphon leg around the bend, instantly relieving the compression. The water from the tank then rushes in to fill up the space which was occupied by the air and starts the siphon, which continues until the outside and inside pressures are again equalized.

The following table gives working data and dimensions, as shown in Fig. 31, to be used in installing 3, 4 and 5-inch siphons. Sizes of 5 inches and over are constructed a little differently from the 3 and 4-inch sizes, although the working principles are the same.

Dimensions for automatic siphons.

Dimension	Reference letter	Inches	Inches	Inches
Diameter of siphon	A	3	4	5
Diameter of bell	B	10	12	15
Diameter of discharge head	C	4	4	6
Drawing depth	D	13	14	23
Depth of trap	F	12	13	22
Width of trap	G	10	12	14
Height above floor	H	7½	8½	9½
Clearance under bell	K	2	2	3
Diameter of carrier	S	4	4–6	6–8
Invert to discharge line	J	20½	22½	33½
Average discharge per second.....cubic feet		0.16	0.35	0.73

The Final Disposal System.

Where the soil is porous or sandy and there is plenty of area available which is used for no other purpose, the sewage from the septic tank may be discharged through 4-inch distribution tile laid on the surface of the ground in gridiron or herringbone fashion. Four hundred and fifty to 500 square feet of area are necessary for each person served if the soil is very porous and sandy, and the soil should either be tile-drained or have natural underdrainage.

A better method of disposal is by subsurface distribution. In this method the tile are placed in the ground in herringbone or gridiron fashion, not deeper than 14 or 16 inches from the surface of the soil to the top of the tile. Fig. 32 shows ground plans of such systems. In very porous or sandy soils 1 foot of 4-inch tile per gallon of discharge per day is sufficient. In the heavier loam soils 2 feet of 4-inch tile are necessary and sometimes more for every gallon. A rough estimate should be made

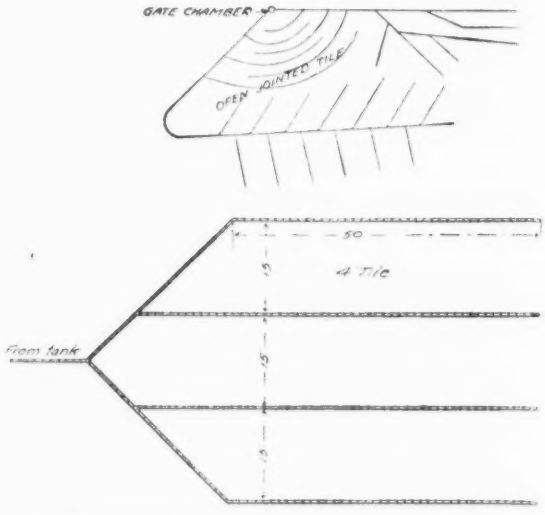


Fig. 32.—Ground Plans of Tile Sewage Disposal Systems.

of the number of gallons of sewage in each discharge from the tank and the number of discharges per day. Not less than 35 feet of 4-inch tile per person should be used in sandy or porous soil and not less than 60 feet per person in very heavy loams. In average loams 300 to 400 feet of tile are sufficient for a family of six or eight.

Aeration of heavy soils can be brought about by the use of coarse cinders or gravel laid in 12-inch to 16-inch layers in the bottom of the tile ditch with the top about 12 inches below the surface. The tile are laid in these

*Prepared and published under the Direction of the U. S. Department of Agriculture, Washington, D. C.

at the usual depth. Fig. 33 shows such an arrangement.

The disposal tile should have a fall not to exceed 1 inch in 50 feet, else the water will rush to the lower end and water-log the soil there. The tile are usually laid about ¼ inch apart and in rows about 15 feet apart. The latter distance, however, will vary with the porosity of the soil. Where there is no subsurface drainage, artificial

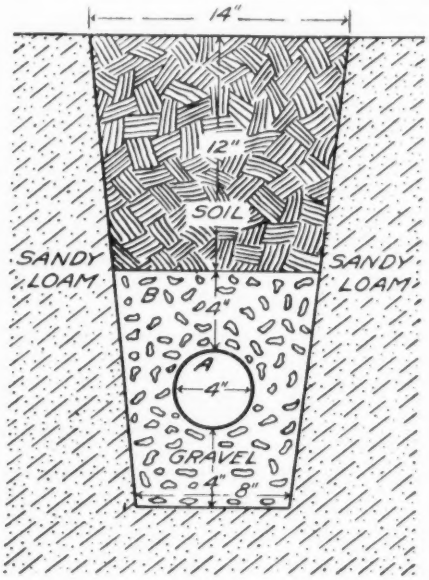


Fig. 33.—Cross Section of Single Tile Sewage Disposal System, Showing Method of Aerating Heavy Soils.

drainage should be provided by means of tile drains laid below the sewage tile as shown in Fig. 34. In some cases an impervious stratum underlying the filter earth is underlain by a stratum of sand. Cases have been noted in which this impervious stratum has been broken by dynamite at 15-foot to 20-foot intervals along the tile line, thus providing natural drainage.

Disposal by Intermittent Sand Filtration.

If subsurface disposal is not feasible, for instance when the soil is compact and nearly impervious or is swampy

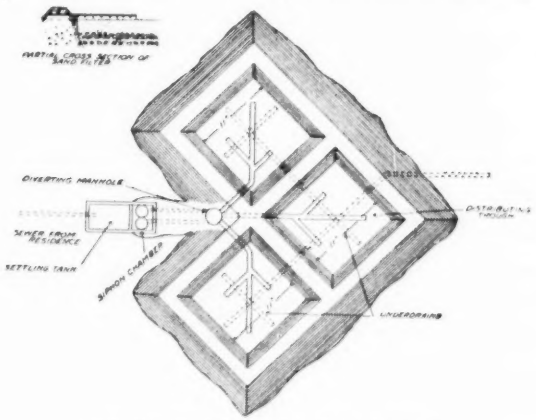


Fig. 35.—Sand Filter for Eight Persons.

and underdrainage is difficult to obtain, disposal by intermittent sand filtration is necessary.

The sand filter usually is a bed of sand 3 to 4 feet thick which is fine on top and gradually increases in size to coarse gravel at the bottom. The sewage from the tank is distributed over the filter by means of the tile laid loose-jointed over the surface in much the same manner as in the ground-surface distribution system. The filter should be sufficiently porous and there should be sufficient natural or artificial underdrainage to allow every dose of sewage to sink away rapidly. Sewage should not

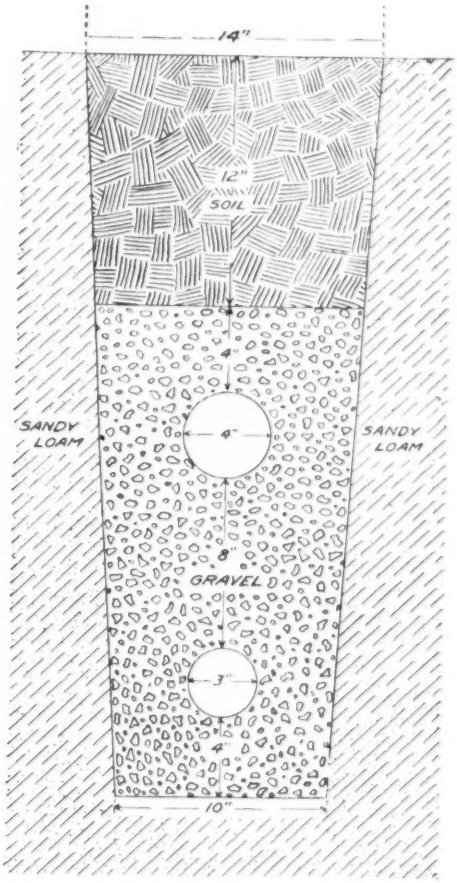


Fig. 34.—Cross Section of Single Tile Sewage Disposal System, Showing Second Tile Below for Underdrainage.

stand on the surface of the filter for any length of time, as this will soon destroy its purifying properties. About 45 square feet of filter should be provided for each person served by the sewer. The area should be divided into from three to five beds so that each bed may be allowed to rest occasionally. Fig. 35 shows a plan and partial section of a sand filter for a family of eight persons.

In constructing a filter sufficient area should be leveled off and small earth embankments be made 18 inches to 2 feet high to inclose the beds. The depth of the filtering material will depend largely on the porosity of the subsurface and the means of underdrainage, but it is well to have it not less than 2½ feet; 3 to 5 feet is better, but the depth should not exceed 6 feet. A good plan is to allow a minimum of 1 cubic yard of filtering material for every 50 gallons of sewage flow.

Single-Chamber Tank Systems.

Single-chamber septic-tank systems may be made to give fair satisfaction if properly designed and operated. In such a system the sewage is received, settled, partially purified, and discharged by one chamber.

There is necessarily considerable disturbance of the

sewage in the tank, and, in addition, the discharge is continuous. This makes necessary two disposal systems, with a diverting gate to allow an occasional breathing spell for each system. If such an arrangement is not

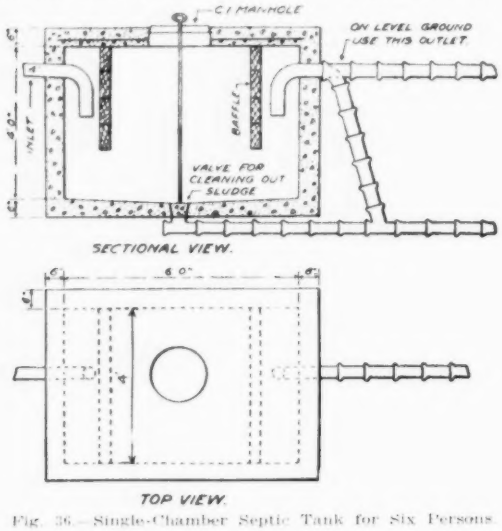


Fig. 36.—Single-Chamber Septic Tank for Six Persons.

used the disposal system must be of much larger capacity than for the double-chamber tank system, in order to prevent the continuous discharge from waterlogging the system.

If a single-chamber tank is used it should be designed

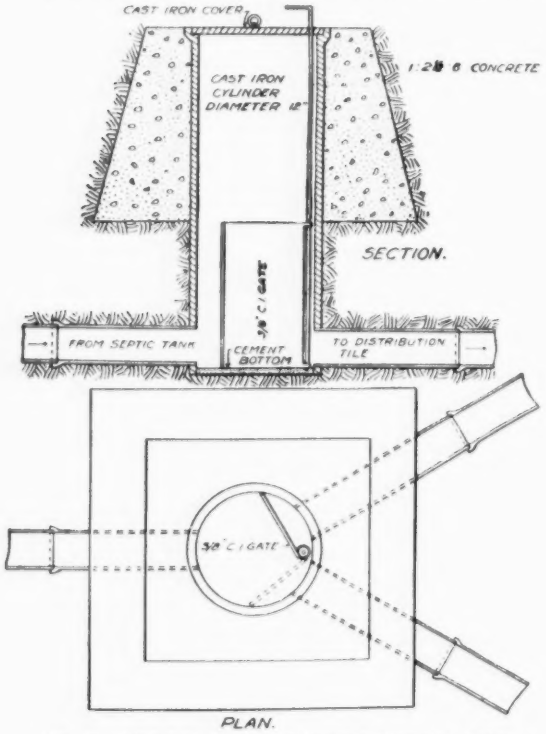


Fig. 37.—Plan and Section of Sewage Diverting Gate.

and constructed on the same basis as the settling chamber of a double-chamber tank, with the elbows at inlet and outlet and baffle boards before these openings to break up the current.

Fig. 36 shows a single-chamber tank for a family of six. This tank has a continuous discharge, and it is necessary to use a switch or diverting gate, as shown in Fig. 37, so that the liquid sewage may be intermittently diverted from one part of the disposal system to another.

The disposal system should be divided into at least two divisions for intermittent application, and the capacity of the system should be 10 to 15 per cent larger than for a double-chamber tank system.

The single-chamber septic tank system requires considerable attention, since there is no provision for automatic discharge. Figures taken from the work of the Wisconsin Agricultural Experiment Station show that in the long run there is little difference in the cost of the single and double chamber tank system.

The Grease Trap.

The grease trap acts as a separator of the grease and sewage from the kitchen sink or dairy room. If grease is allowed to enter the sewer it accumulates and eventually clogs the system.

Fig. 38 shows a grease trap. Two large, glazed sewer

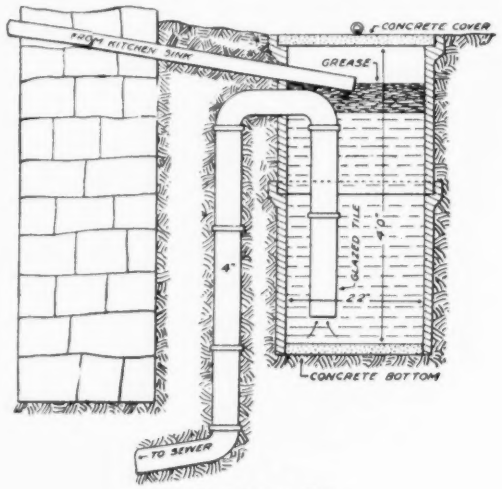


Fig. 38.—Grease Trap.

tiles are placed in the ground. The inlet is usually a 2-inch iron pipe. The outlet must be so arranged that the mouth of it is at all times below the surface of the sewage. The grease, being lighter, naturally floats upon the water, and is thus prevented from entering the outlet. The outlet is made of 4-inch glazed sewer tile and is connected with the sewer inlet of the septic tank. A concrete cover is provided and grease and dirt which may accumulate are removed when necessary.

Suggestion on Operation.

Contrary to the usual opinion, small sewage systems require some watching and care. It is well to study the system and watch the action in the entire plant for any signs of clogging or waterlogging.

It is hoped that the foregoing discussion has presented information of a nature practical enough at least to indicate the general requirements to be met in planning sanitary systems adapted to the average farm home. Nevertheless, the matter is of such importance as to make it advisable to employ a reliable plumber or sanitary engineer. Enormous expenditures are being made by progressive cities in the installation of sanitary systems to protect the health of their people, and similar protection is surely due the country resident.

(Finis.)

Effect of Radiator Decoration

By THOMAS TAIT

Thomas Tait.

THE proper decorating material to be used on radiating surface is somewhat in doubt. The International Correspondence School has the following to say on this subject: "In experimenting with the conditions of heating surfaces it is found that, with surfaces of various kinds, the emission of heat is about as follows, the total emission from a new cast-iron plate having its natural surface (as cast) being taken as 1:

"Cast iron, new, 1.00; cast iron, rusty, 1.02; wrought iron, ordinary or "black," .93; wrought iron, bright, but not polished, .72; surface covered with lampblack, dull, 1.06; surface covered with white-lead powder, dull, 1.06.

"It is found, also, that the emission of heat is affected by painting or bronzing about as follows, the amount given off without paint being taken as 1:

"Two coats of asphaltum paint, 1.06; two coats of white-lead paint, dull, 1.09; rough bronzing, 1.06; one coat of glossy white paint, .90.

"This last item shows the effect of a glossy, or polished, surface in reducing the emission of heat."

Professor Carpenter has the following to say: "From experiments it would appear, in a general way that the character of the surface affects the heat given off by radiation only, and not that given off by convection. In ordinary cases of direct radiation, because the surfaces are closely massed together, the radiant heat does not probably exceed on an average 40 per cent of the total emitted, and is neglible in indirect heating. It would appear that if we consider the radiant heat given off as 100 from a new surface of cast iron, that from wrought iron would be 87, from a surface coated with soot or lampblack 125, from a surface with a lustre like new sheet lead 20½, from a polished silver surface 13½. These results make very much less difference, when applied to total heat emitted, since the total radiant heat is only a small portion of the whole heat given off. Calling the radiant heat as 40 per cent of the total, we should have the following numbers as representing the heat emitted from various surfaces:

Cast iron, new	100	Rusty surface	102
Wrought iron	93	Bright iron surface	72
Dull lampblack	106	White lead, dull	106"

Professor Carpenter had some experiments made in Sibley College, the result of which showed that the effect of painting was to increase the amount of heat given off. It was found that two coats of black asphaltum paint increased the amount 6 per cent; two coats of white lead 9 per cent. Rough bronzing gave about the same results as black paint. On the other hand a coat of glossy white paint reduced the amount of heat emitted about 10 per cent.

Professor John R. Allen has this to say: "The results given are taken from the heat emission of Radiator No. 2 as compared with Radiator No. 1, which has been assumed as a standard and was left unpainted during the test. Tests No. 1 and No. 2 were made with both radiators unpainted and an average of the results gives a difference in the heat transmission in the two radiators of 0.1 of 1 per cent, so that they are assumed as having practically the same heat transmission value. Tests No. 3 and No. 4 show the effect of painting radiators with two coats of copper bronze for each test. The results of the test show a reduction in the heat transmitted by the radiator of 24 per cent. On top of these four coats of copper bronze two coats of terra cotta enamel were applied. The result of the additional two coats was an increase of 3.8 per cent above the transmission effect of the bare radiator or 28.6 per cent above the transmission effect of the radiator with a copper bronze finish. On top of these coats of terra cotta enamel were applied two coats of copper bronze, the same as was applied previously, and the loss in the conducting capacity was shown to be about 26½ per cent. This is about the same result as was obtained in the first experiments with copper bronze.

"In order to determine whether this loss in heat transmission was produced by the pigment of the paint or by the vehicle carrying this pigment, test No. 7 was made using only the vehicle which was a light brown varnish. This test shows a loss of 2.8 per cent as compared with the unpainted radiator. The same was true when a light oak brown varnish was used. This varnish was applied on top of the coats as previously mentioned. The varnish was followed by two coats of aluminum bronze, and the heat transmission was nearly the same as that shown by the copper bronze, namely a loss of 27 per cent.

The interesting fact is that the transmission of heat was almost the same with 14 coats of paint applied to the radiator as with two coats, and that the effect apparently depended upon the last coat applied and the intermediate coats through which this heat was transmitted had very little effect upon the heat transmission. That is, the heating effect of the radiator was more affected by the condition of the surface than by the material through which the heat was conducted. Tests Nos. 10, 11, 12, 13, 14 and 15 were started with two coats of aluminum bronze. The heat transmission was practically the same as for the aluminum bronze in test No. 9 in which 12 coats of other paints had been applied, showing, as previously stated, that the various coats underneath the last coat made very little difference in the heat transmission. These coats of aluminum bronze were followed by a series of enamels of different colors as stated in the table. You will note, as shown in test No. 12, that the snow-white enamel gave the best results. The lowest result was given by "no lustre" green. The extreme difference due to color was about 54 per cent. Tests No. 16 and No. 17 were made using a different vehicle for carrying the pigment. You will notice in these tests that copper bronze and shellac seem to give better results than copper bronze and linseed oil, so that the vehicle may have some effect in the value of the heat transmission of paints. Tests Nos. 18, 19 and 20, made with white lead paints, show that the transmission effect with white lead and oil is practically the same as for unpainted radiators. These white lead paints were followed by coats of zinc paint, as shown in tests Nos. 21, 22 and 23. For the light green and white the transmission effect was practically the same as for unpainted radiators. For terra cotta there was a slight reduction in heat transmission.

"These tests, made in the Experimental Laboratory of the University of Michigan, covered a period of about three months. They seem to show that the poorest coverings are

the copper and aluminum bronzes; the best materials tried were the enamels, while white-lead paints and zinc paints are only slightly less in transmission effect than a coat of enamel.

Table of the Tests.

No. 2 Radiator plain in all the tests.

No. 1 Radiator Test No. 1 .997 efficiency Rad. plain as received from factory.

Radiator Test No. 2 1.005 efficiency Rad. plain as received from factory.

Radiator Test No. 3 .761 Efficiency Painted with Copper Bronze.

Radiator Test No. 4 .752 Efficiency Painted with Copper Bronze.

Radiator Test No. 5 1.038 Efficiency Painted with Terra Cotta Enamel.

Radiator Test No. 6 .735 Efficiency Painted with Copper Bronze.

Radiator Test No. 7 .977 Efficiency Painted with Light Brown Varnish.

Radiator Test No. 8 .977 Efficiency Painted Oak Brown Varnish.

Radiator Test No. 9 .73 Efficiency Painted with Aluminum Bronze.

In the above tests these paints of two coats each were painted over one another in the order given.

Radiator Test No. 10 .724 Efficiency Painted with Aluminum Bronze.

Radiator Test No. 11 .97 Efficiency Painted with Silver Gray Enamel.

Radiator Test No. 12 1.01 Efficiency Painted with Snow-White Enamel.

Radiator Test No. 13 .997 Efficiency Painted with Bronze Green Enamel.

Radiator Test No. 14 .956 Efficiency Painted with No Lustre Green Enamel.

Radiator Test No. 15. .997 Efficiency Painted with Maroon Gloss Japan.

This series of tests from Nos. 10 to 15 follows one another.

No. 1 Radiator Test No. 16 .85 Efficiency Painted with Shellac and Copper Bronze Powder.

No. 1 Radiator Test No. 17 .76 Efficiency Painted with Copper Bronze Powder and Linseed Oil.

No. 1 Radiator Test No. 18 .987 Efficiency Painted with White Paint.

No. 1 Radiator Test No. 19 1.00 Efficiency Painted with Terra Cotta Paint.

No. 1 Radiator Test No. 20 .989 Efficiency Painted with Light Green Paint.

No. 1 Radiator Test No. 21 1.00 Efficiency Painted with Light Green Paint Zinc.

No. 1 Radiator Test No. 22 .964 Efficiency Painted with Terra Cotta Paint Zinc.

No. 1 Radiator Test No. 23 1.01 Efficiency Painted with White Paint Zinc.

In tests Nos. 18 to 23 the coats were painted over one another.

American District Steam Co. says: "Radiator decoration, considered until recently to be one of the minor details, has been found to be an extremely important factor in the operation of a heating system.

"In order to establish this point, we have conducted exhaustive experiments in the decorating of radiators with paints and bronzes of various kinds and colors. These experiments have proven conclusively the superiority of enamel paints over the customary aluminum, gold or copper bronze finish, and following is a record of tests made, showing the relative efficiency as a condensing medium between enamel paints and aluminum, gold or copper bronze. The same radiators were used for all tests, which were made in the order given.

	Condensing Capacity.
No. 1 A Cast Iron Rad. Bare as received from the foundry	100 per cent
No. 2 A Cast Iron Rad. Coated with Aluminum Bronze	78 per cent
No. 3 A Cast Iron Rad. Three Coats of White Enamel Paint	102 per cent
No. 4 A Cast Iron Rad. Coated with Copper Bronze	80 per cent
No. 5 A Cast Iron Rad. Three Coats of Green Enamel Paint	101 per cent
No. 6. A Cast Iron Rad. Three Coats of Black Enamel Paint	101 per cent

"Thus it will be seen that while the bronze finish reduces the condensing capacity of the bare cast-iron radiator 20 per cent, the application of enamel paint of any color, having as a base a pure varnish made of resinous gums, produces a radiating surface that slightly exceeds in efficiency that of the bare radiator. It makes no difference if the enamel paint is applied over the bronze, or the bronze over the paint, the ultimate result being dependent upon the last covering given the radiator.

"From these facts and figures our deductions are that the decreased efficiency produced by bronze or other covering, using zinc as a base, is due to the galvanizing or non-conducting effect caused by their application, while paints of any color, having a large percentage of pure varnish made from resinous gums, create a surface of high conductive qualities, making heat transmission much more rapid.

"Hence it is evident that the amount of radiation required by former rules of estimating can be materially reduced, and since these enamel paints can be used in any color with equally good results, they can be selected so that the radiators may be of a color corresponding to the rooms in which they are placed, and thus mitigate, to a great extent, the heretofore unattractive appearance that has frequently been the cause of complaint."

A summarization of the preceding would lead one to believe, that while some of the results obtained are at variance, if this were neglected there is still proof enough to show that the various coverings do materially affect the transmission of heat from the radiator to the room. Prof. Allen deserves credit for the thoroughness which he displayed in making the tests. It is assumed that the entire surface of the radiators were covered during the tests instead of only that portion which is readily seen at a glance. This latter appears to be common practice in actual installations. Unless the entire surface were covered, if the entire surface were covered in the tests the differences presented by the various tests would not be so great. The question of the proper covering to use for decorating a radiator is worth attention, as it does not appear to be displaying good judgment to install, say, a 100 sq. ft. radiator and then deliberately reduce this to the equivalent of a 73 sq. ft. or 78 sq. ft. radiator by painting it with a heat emission reducing coat.

News From the Front.

Vicar (who had called to read a letter to one of his parishioners from her son at the front)—"Your son, Mrs. Codling, has been fighting in the trenches. For a whole week he was standing up to his neck in water."

Mrs. Codling—"Well, I never! This war is doing some funny things, sir, to be sure. We couldn't get 'im to put water anywhere near 'is neck when 'e wos at 'ome!"
—London Tit-Bits.

Business Methods for the Plumber and Fitter

XXXVI—Importance of Knowing the Exact Cost of Labor and Material on Plumbing and Heating Contracts

By WESLEY A. FINK

Wesley A. Fink.

YOU workers, boys and men, who have often thought that you would like to go into business for yourself and procure for your labor double the amount that your employer was paying you, just take this matter under consideration. Make yourself thoroughly acquainted with the fact that to "double wages" does not begin to bring back to the employer the whole cost of the job, much less does it give the "boss" any profit.

In "Domestic Engineering," April 11, 1914, Robert H. Pflug-Felder, secretary of the Philadelphia Association of Master Plumbers, states that in the experience of twelve plumbing shops, the overhead expense in two of the shops were respectively 106 and 123 per cent of productive labor.

In "Domestic Engineering," June 6, 1914, J. Selvin Hill states that in eight plumbing shops in Chicago, the overhead expense in four of the shops were respectively 105, 107, 109 and 143½ per cent of productive labor. The average overhead expense in the eight shops was 90¼ per cent of productive labor.

It is to be hoped that employes will make closer studies of cost-finding every day, so that when they have saved up a "stake" they will be in a better position to make their capital repay them every penny of cost as well as a profit.

It is well for every master plumber engaged in business, in addition to those contemplating going into business, to ask themselves the following questions:

Are you a workman or a business man? What can you do best, fit up a bath room, or sell your plumbing work? Wipe a solder joint or get the value of the joint after it is made? Do you estimate, or do you shut your eyes and guess, hoping for the best? What are the master plumber's problems within his shop as well as out? Do the ordinary principles of successful business apply to plumbing? If cost finding is the trend of the times in all lines of industry, is it safe for the plumber to ignore it? You ask your bookkeeper to account for every cent of cash; do you ask your workman to account for every minute of time? Is there anything you sell (aside from stock) except time?

How can you make out your bill intelligently unless you know:

1. The exact amount of time spent on the job?
2. The value of that time?
3. The amount of material used?

Do you ask your bookkeeper to tell you "about how much cash we took in last month?" Perhaps not.

Do you ask your workman to tell you "about how much time he puts on the job?"

Yes, you do, if you haven't a cost system. How do you know that you are honest with yourself and your buying public in the conduct of your business? How do your customers know it; is there any doubt in their minds? How do your competitors know it?

That awful competitor of yours is really only a reflection of yourself, and awful and dangerous only in proportion to his ignorance of cost, estimating and business methods. It is largely your fault that he exists.

If you knew your cost and always quoted a price which was based on cost plus a profit, your customer would soon stop telling you of the low prices he was getting from that awful competitor, and if you did your duty to your competitor by co-operating with him to secure the right price for all plumbing and heating done in your city he would soon cease being a competitor at all.

He is certainly an awful fellow, but what have you done to make him anything else? He possibly graduated from your shop and is working on what he supposes to be your ideas. He is doing what he thinks you would do under the same conditions and he is a terrible nuisance. What are you going to do about it? Suppose you try educating him and teach him the true values of plumbing and heating and how to estimate. Bring him to the meetings of the master plumbers' association and let him learn what he can gain by replacing competition with co-operation.

Let us consider a skilled plumber who is possessed of ambition and a determination to get ahead, who is ever desirous and at all times seeking an opportunity to better his conditions by learning, in every way possible, more about the trade by which he earns his livelihood, that he may be capable and competent to fill positions calling for greater knowledge and requiring a larger responsibility. If he has made the most of his opportunities and has been reasonably successful as a journeyman and foreman, there is sure to come a time when he believes that the one thing left for him to do is to "go into business for himself."

The change from employee to employer is the real turning point in his career, and he enters upon a field of endeavor of which he understands very little. Possessing as he does the necessary knowledge of plumbing as a trade, he is convinced that an understanding of the business end is something he can easily acquire, regarding it a secondary consideration, or at best an adjunct, anyway.

He does not realize that there is a similar relationship between the years that he has given to learning the actual plumbing end of the business and the length of time necessary for him to acquire a corresponding knowledge of "business." Under these conditions he has a very small chance of success, but it is hard to convince him of this fact, even if you can prove your statements in a hundred different ways.

He starts to get his business knowledge and experience in the same way that most of us got ours, in a school of never-ending business worries and hazards, without the help of any real definite business viewpoint. If he could be made to realize and understand some of the principles, facts and conditions that are part of and go toward making up the plumbing business, and the influences that

bear upon them, he would save himself worry and money a thousand times.

The average plumber cannot go to a merchant and sell him a commodity that his business actually demands. He can only go to him and ask for a "job" or a chance to figure on the plumbing he requires, the necessity for which the plumber has not created.

If you start to dissect and analyze the plumbing business, solely on its merits as a business, it must be classed generally as a jobbing business and not a manufacturing business that produces an actual salable product. The output is a class of merchandise that cannot be controlled by the plumber himself. It cannot be warehoused or sold to the consuming public generally. In other words, your customer controls your product at all times. From a sales point of view, the plumbing business depends upon the prosperous condition of stable businesses. These conditions make it a poor banking risk by reason of its inability to create for itself a class of commercial paper readily acceptable by the bankers.

It is only in the last few years, by reason of the chaotic conditions in the plumbing business, brought about mainly by the practical business methods of the plumber himself, through lack of mutual association and an ignorance of costs, that he has begun to realize that there is something in modern business methods that he has not noticed and could possibly apply successfully to his own business.

It is a remarkable fact that in our time everybody seems to know the plumber's business and its value infinitely better than he does. His price must be wrong, because his competitor or his customer imagines that it is not right. Knowledge counts for nothing, practical experience is at a discount, and the quaint humor of the situation is overshadowed by grim tragedy, when one remembers that many a man has been driven to destruction in an honest endeavor to reach down to the demands of those who are little less criminal than highwaymen in the methods they employ to get the better of the plumber.

If the plumber cannot make ends meet, through no fault of his own, surely he must either give up or perish in a forlorn hope. Why should such a calamity be permitted?

Is the master plumber's time worth nothing? Is that his estimate of himself and his capabilities? If it is, a discriminating public will speedily weigh him in the same balance and when found wanting what shall his fate be? Just what it deserves to be, if he continues the suicidal policy of pandering to every caprice of Tom, Dick or Harry, who demands either cheaper plumbing or bigger discounts, not because they are already paying too much or can do better, but because of the innate desire of every miserable miser to grab a slice of what rightfully belongs to another, no matter what sacrifices he may make to truth and honesty by so doing.

The strongest barrier that every business man must reduce or meet on an equal footing to claim success is called competition, and this competition in business, in the main, is created by two conditions: Ignorance of costs coupled with a low degree of manufacturing and sales efficiency; and a most intelligent knowledge of costs, the highest degree of manufacturing efficiency and sales organization.

The plumber knows, however, without the help of a knowledge of costs, that to sell a commodity at a profit he must know what it costs him to produce, and right here is the great mystery.

As conditions of cost can only be arrived at by the aid of actual detailed records and as labor is one of the principal factors that go to make up the cost of a product, we must have an exact accounting of labor. The method that will most effectively and accurately supply this information is of vital importance to the plumber. No self-solved systems of determining these records should be used. The consensus of opinion of successful plumbers of standard systems in use can generally be relied upon.

In the main, the plumber all the while has been more of a craftsman than a business man. The initial business point of view of the plumber generally has been gained through his experience as a craftsman, and this point of view is really of minor importance compared to a thorough business training and a knowledge of costs and sales.

It is surprising the magnitude of the barriers that the lack of this knowledge has built up around him, against all arguments in favor of his adopting and introducing into his business the principles of cost-determining and sales organization.

Questions and Answers

ADDING NEW RADIATION TO OLD HEATING PLANT.

Editor "Domestic Engineering":—The accompanying sketch shows the layout of a heating job which I am about to install. The red lines indicate new work and the black lines show work already installed. The returns are wet. Do you think the new return will prove satisfactory? My reason for running it in the direction indicated, is to do away with piping in the basement, because it is so small and half of it is used for coal bins.

Cape May Court House, N. J. S. P. H.

The installation to which the above letter refers is shown by Fig. 1, which indicates as closely as possible the

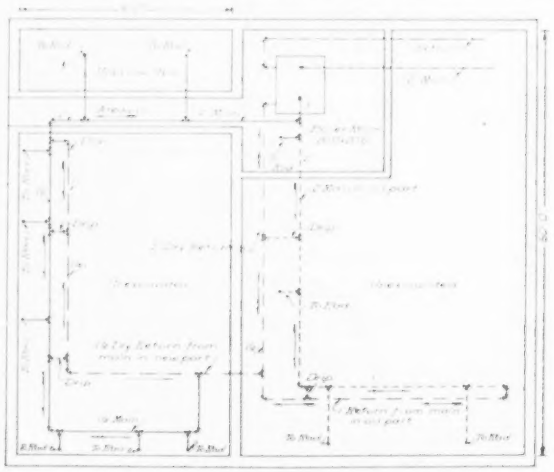


Fig. 1.

piping layout as sketched by correspondent. The old work shown in black lines on the sketch submitted is indicated by dotted lines on the illustration and the new work

shown by correspondent in red ink is indicated on the sketch by solid lines.

The work or system shown is the old style or old method of installing steam piping and we would recommend that our correspondent pipe the new work in a more up-to-date manner.

As the size of radiators or the total sq. ft. of radiation supplied is not given it is not possible for us to show the size of pipe required. If, however, a 2-inch pipe from the boiler is of sufficient size to supply the radiation as

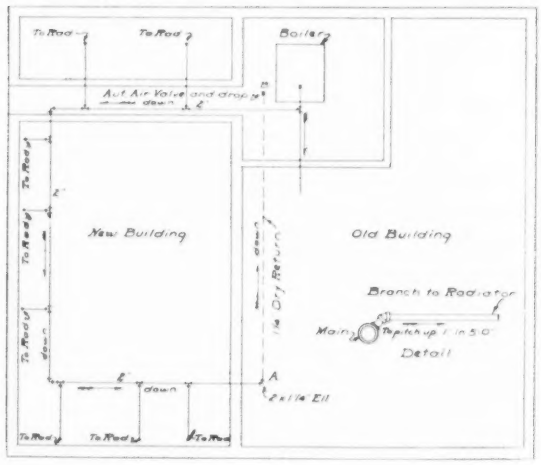


Fig. 2.

indicated we recommend that a loop system be installed as shown by Fig. 2. The 2-inch main should start high at the boiler and should pitch down at least ½ inch in each 10 ft. of length to the point marked A on the sketch.

At this point a 2 by 1¼-inch elbow should be placed on the end of the main pitching downward at an angle of 45 degrees and a close nipple and 45-degree elbow should be employed to start the 1¼-inch dry return towards the boiler. This return should pitch down and run to a point near the boiler (marked B on the illustration) and then drop below the water line and connect into the return of the boiler or into another wet return leading to the boiler as indicated by Fig. 3. The elbow

Fig. 3.

tapped for automatic air valve should be at least 14 inches above the water line of the boiler.

All branches to radiators should be taken from the main with 45-degree connections, as shown by detail on sketch, Fig. 2.

We suggest that correspondent leave the old work as it is at present installed and that he pipe the new work in an approved manner as we have shown by Figs. 2 and 3. This will give an opportunity of noting how much more easily and quickly the steam can be circulated through the new system of piping than through the old.

WHY DID THIS SUPPLY TANK COLLAPSE?

Editor "Domestic Engineering":—Can you explain to me how a gravity supply tank on the second floor of a building, with the supply at the bottom, and the overflow pipe at the top, running back to the cistern, and the tank perfectly tight, could possibly collapse by the formation of a vacuum in the tank? Could collapse have resulted from siphonage of the contents of the tank, and how? The overflow pipe did not have any pockets where water could possibly lie; if it had I could see plainly how it could form a vacuum, but as it is, I cannot figure out how the collapse came about. I would also like to know if it would be advisable to protect hot water pipes that are to heat a garage at a distance of 60 ft. from the house, by filling the box which contains two 2-in. pipes with asbestos. The pipes are 12 in. below the surface, and therefore above the frost line. My idea was to use air-cell covering and fill the box with asbestos, but the owner thinks the asbestos will be enough.

Northfield, Minn. C. J. A.

A vacuum is space from which the air has been entirely exhausted. We cannot see how the air could possibly be exhausted from the supply tank that correspondent mentions, and therefore cannot believe that the formation of a vacuum had anything to do with its collapse.

When he speaks of a gravity supply tank, we naturally think of an open tank, and there is no reason whatever for considering the matter of vacuum in that case. If the tank was closed, it would be open to the air through the overflow, and the formation of a vacuum therefore impossible.

If the tank is closed, and in some way the overflow became closed, even then there could be no collapse from the draining out of the contents through the bottom supply, for the reason that there would be no pressure on the tank to force the water out. We can see no way in which siphonage could take place, as apparently no conditions are present for the formation of a siphon.

In our opinion, collapse must have been due to a weak tank.

Regarding the protection of the hot water pipes, we would say that in an extremely cold climate, with the pipes buried only a foot below the surface, it would certainly be advisable to give the pipes all the protection that can be provided. Even with the pipes covered and the box filled with asbestos, the pipes must be kept warm all the time, or they will freeze. The fact that flow and return run in the same box will help.

When air is confined so that there is no circulation, such air becomes a non-conductor of heat, and makes an excellent insulation against cold. The air-cell covering mentioned by correspondent, takes advantage of this principle, and we consider it excellent for this purpose.

A QUESTION ABOUT HOT WATER SUPPLY CONNECTIONS.

Editor "Domestic Engineering":—I find that Fig. 1, page 261 of your August 28th issue, is not an exact reproduction of Fig. 2, page 110 of the July 24th issue. According to sketch of August 28th, please tell me how circulation could be established in boiler A, when the furnace only is in operation. Also, how could circulation in boiler B be established with either or both water backs in use, and the furnace idle? Of course, this may be an unintentional error in copying the connections.

Referring to the July 24th sketch, how would it be

possible to get circulation in either boiler, when upper water back only is in use? Of course the upper boiler would heat, but would the lower boiler ever become warm?

Under the circumstances, would it be possible to heat lower boiler from upper water back, without running a loop high up above the range, which would be unsatisfactory?

Is it not a fact that the lower boiler will have the hottest water when the furnace only is in use? Would it not be advantageous to have the upper boiler hottest at all times?

I am submitting my own sketch. By discontinuing the cold water supply to upper boiler, thus leaving the

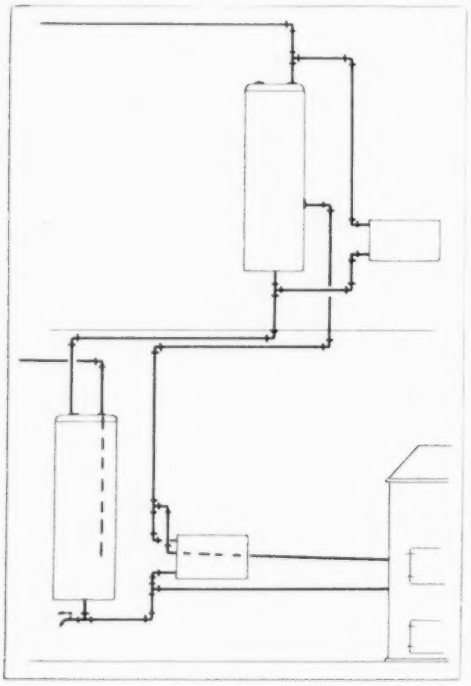


Fig. 1.

two boilers to heat as a single unit, as in my sketch, will it not make a difference as to the direction of flow in the connecting pipe? In my sketch, the hottest water is at all times flowing toward the point from which it is to be used, and when upper water back only is in use, the upper boiler is free to circulate perfectly.

Little Rock, Ark. A. L. M.

A. L. M. answers his own question concerning the difference in the two sketches, when he intimates that an error might have been made by the draughtsman in not copying the July 24th sketch correctly.

It is self-evident that such an error was made, in not tying the return of the furnace coil into the range return, as in the sketch which was supposed to be reproduced. The lack of this connection between the two returns would not affect the working of the system, regardless of whether furnace alone or ranges alone were in operation. We would prefer to have this little connection made however, but only for the reason that in general, multiple connections work more evenly when the returns are tied together.

We do not think the lower boiler is going to heat to any extent, excepting when the furnace is in operation. When only the ranges are in use, the lower boiler will heat only when the upper boiler has an excess of hot water which stores itself in the lower boiler.

Certainly when only the upper range is in operation, it will probably be unable to store much if any hot water in the lower boiler.

The use of a loop to store hot water from the upper range in the lower boiler is without value, for this range will make only so much hot water, and it will all probably be needed by the upper boiler, any excess storing in the lower boiler.

We think that the upper boiler will have the hottest water at all times, rather than the lower boiler, for the reason that hot water rises, and the hottest water will be found at the high point.

We reproduce A. L. M.'s sketch, Fig. 1, in our illustration. We do not just understand what he expects to accomplish by these connections, which are further off from the correct idea than the original connections submitted in the July 24th issue.

We wish to ask what purpose the lower boiler serves? There is no flow connection into it, and the connections between the two boilers are entirely wrong.

In both the July 24th and Aug. 28th sketches, certainly the flow is all in the direction of the point at which hot water enters the pipe leading to the fixtures, and we are unable to get A. L. M.'s viewpoint in figuring that his connections will do this more effectively, or in figuring that the upper boiler when heated by the upper range will do so much better than with the connections of our previous illustrations.

New Business Ventures

Fort Wayne, Ind.—The Edmunds Electric Construction Co., of 1019 Calhoun Street, has recently opened plumbing and heating departments in connection with its electric business. M. W. Worden is in charge of the new departments.

Birmingham, Ala.—Barmitz Plumbing & Heating Co. has been incorporated with a capital of $2,000. The officers of the new company are: C. B. Barmitz, president; H. A. Ehrhardt, vice-president; S. W. Bookhardt, secretary-treasurer.

LaFayette, Ind.—A. C. Sandberg has just opened an up-to-date plumbing and heating establishment at 916 Main Street. Mr. Sandberg has had a large experience in his line, having been connected with Wallace Bros. in this city for twenty years. He would like to receive catalogues from jobbers and manufacturers of plumbing and heating goods.

"You can't better the Wisconsin woods for a nice, bracing holiday," exclaimed the man who stayed at home.

"Nonsense!" replied the man who traveled. "There's a little place in Michigan that beats anywhere I know. Why when I was there three weeks ago I gained 137½ pounds."

"Tell another!" exclaimed the man who stayed at home, incredulously.

"It's a fact!" insisted the one who had traveled. "Come round to dinner tonight and I'll introduce you to her."

MASSACHUSETTS PLUMBERS' ANNUAL OUTING.

The annual outing of the Massachusetts State Association of Master Plumbers was held at the Willows, Salem, Mass, on Friday, September 10th, with a good attendance, 229 master plumbers, guests and supply men being present. The weather was extremely hot, but the sea breezes of the Willows served to keep the picnic party comfortable. Over fifty automobiles helped to bring the members of the association to the Willows and by 11 a. m. the greater number of members were on hand. A short business meeting was held at Gorman's theater, after which many members of the party enjoyed a trip down the Salem harbor, visiting the North Shore, the summer home of many Eastern millionaires. Among the invited guests who addressed the gathering at Gorman's theater were Mayor Matthias J. O'Keefe, of Salem, who extended the city's welcome to the visiting plumbers. John B. Feehan, of Lynn, president of the state association, presided over the business meeting and introduced National President James S. Cassedy, of Cambridge, who delivered an interesting report on the national convention held in Chicago. Among other interesting facts he asserted that the National Association now has a membership of 10,000. National Secretary Richard J. Welch, of Lowell, also made an interesting talk. A fish dinner was served to the guests at the Ebsen and Chase restaurant, after which a baseball game between nines representing the master plumbers and the salesmen was played on a diamond under the guns of old Fort Lee. The game was called after the seventh inning on account of the intense heat and the size of the score (19 to 18), the salesmen being the victors.

Late in the afternoon a trip was made about the city of Salem, and the visitors were surprised and delighted to see the great progress made in rebuilding that portion of Salem devastated by fire over a year ago. Salem's landmarks and historic places proved of particular interest to the plumbers, who represented the following cities: Boston, Worcester, Lowell, Haverhill, Lynn, Beverly, Peabody, Marblehead, Salem, New Bedford, Fall River, Newburyport, Fitchburg, Springfield, Stoneham, Quincy, Wakefield, Winchester, Gloucester, Framingham, Abington, Stoughton, Natick, Dedham, Reading, Marlboro and Somerville.

The committee in charge of the outing consisted of the following: James H. Trow, John F. Cabeen, Robert Robertson, Bartholomew Driscoll and Elwood Noyes, all of Salem, with the exception of Mr. Robertson. The state association now boasts 650 members.

NEWARK PLUMBERS HOLD SPECIAL MEETING.

Thursday, September 9th, was a big get-together day for the Master Plumbers' Association, of Newark, N. J. In the afternoon of that day the state officers of the New Jersey Association met at the Achtel-Stetters to plan organization work for the coming season, and in the evening an open meeting of the local association was held at headquarters for the entertainment of the visiting plumbers and the heads of the various supply houses in Newark.

A feature of the evening was an address by Charles Allen, head of the State Tenement House Commission. He spoke very interestingly of the work of the commission, illustrating his remarks with lantern slides.

George Aldous, of Passaic, in addressing the gathering expressed his appreciation of the educational value of Mr. Allen's talk and said he would endeavor to have that gentleman talk before his local association.

Louis A. Menegaux, of Union Hill, president of the State Association; Joseph A. Sproules, of Jersey City, state vice-president; John Turbett, of Newark, and Frank K. Chew, of New York, also spoke and congratulated the association on having had the opportunity of hearing Mr. Allen.

There were about eighty in attendance, and a social hour with refreshments and luncheon brought the pleasant and instructive evening to a close.

Lexington, Neb.—F. H. Jacobson has secured the contract for the heating and plumbing in the new high school building at Sidney, Neb.

Moorhead, Minn.—The Moorhead Plumbing Co. has secured the contract for remodeling the plumbing in the city hall and city jail at Breckenridge, Minn.

Hastings, Neb.—Rutherford Bros. have been awarded the contract for plumbing the new residences of Fred Panzer, D. B. Marti, Fred Heartwell and O. F. Heartwell.

Hastings, Neb.—P. E. Coy has been awarded the contract for installing plumbing systems in the Stockham Grain Elevator and in Mrs. Viola Neumann's residence.

Greencastle, Ind.—W. A. Beemer, of this city, has been awarded the contract for plumbing in a local school building which is now being remodeled. The contract amounts to $1,565.

Madison, Wis.—The L. W. Rosen Heating Co. has been awarded the contract for installing a modern heating system in the new Lincoln school in this city. Consideration, $10,581.

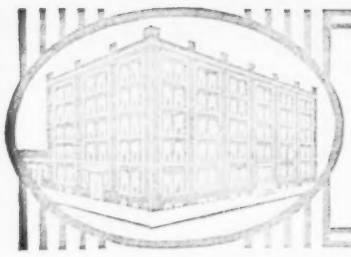
Ashtabula, O.—J. J. Farrell has secured the contract for the installation of an up-to-date heating system in the new high school building on Division Street. The contract amounts to $22,489.

Wichita, Kans.—The Wichita Heating & Plumbing Co., of 138 North Market Street, has been awarded the contract to install a heating system in the Central school building at Sterling, Kans. Consideration, $3,450.

Eau Claire, Wis.—The contract for the heating of the new city hall, in this city, was awarded to the Eau Claire Cornice & Heating Co., at its bid of $3,283. The Bartingale Co., also of Eau Claire, secured the contract for the plumbing at $2,837.

Choteau, Mont.—The Board of County Commissioners of this place has awarded the contract for boiler house and alterations in the county courthouse to Fred S. Boege, of Choteau, for $1,240. Contract for heating and plumbing was awarded to Frank Gillan, Conrad, Mont., for $1,540.

Fort Wayne, Ind.—Derheimer Bros., of 523 East Jefferson Street, have recently secured the following contracts: Steam heating installations in the Catholic parochial school at Besancon, Ind., and the Sisters' house in connection with St. Peter's school; vapor heating installations in the parochial residence at Besancon, Ind., and in John Hoffman's residence; hot water heating in August Schele's residence and hot water heating in two residences for T. F. Thieme.



Among the Wholesalers and Manufacturers

COMPANIES RECENTLY INCORPORATED.

The Eastern Plumbing Supply Co., of Hartford, Conn., has been incorporated with a capital of $25,000. The incorporators are Barney Marcus, R. Meister and Merrill A. Mills.

The Contractors' & Plumbers' Supply Corporation, of Richmond, Va., has been incorporated with a capital of $25,000. The officers of the company are: T. A. Sommers, president; O. B. Lovell, vice-president; E. W. Evans, secretary and treasurer.

THE ANNUAL MEETING OF THE ILLINOIS CHAPTER OF A. S. H. V. E.

The Illinois Chapter of the American Society of Heating and Ventilating Engineers will hold its annual meeting on Monday evening, October 11th, at the New Morrison Hotel, Parlor A, Room 2, in Chicago. The election and installation of officers for the coming year will take place on this occasion and Secretary W. L. Bronaugh, on behalf of the chapter, bespeaks the attendance of all the members.

HAVE PURCHASED PLANT OF EXETER MACHINE WORKS.

The Exeter Brass Works, of Exeter, N. H., recently purchased the plant of the Exeter Machine Works, which will be equipped with modern machinery and devoted to the manufacture on an enlarged scale of the Ryan line of ball cocks and their other brass plumbing specialties. With this addition the company's plant now covers 30,000 square feet of floor space. W. B. Folsom is treasurer and general manager of the company.

THE SEPTEMBER TOURNAMENT OF THE WESTERN TRADE GOLF ASSOCIATION.

The Western Trade Golf Association held its regular monthly tournament on Wednesday, September 15th, at Glen Oak Country Club near Glen Ellyn, Ill. The event was favored with ideal weather and a good attendance.

The prize winners were as follows: D. E. McCabe, secured low net score of 77, entitling him to an interest in the association cup. The approaching and putting contest for the Paul Blatchford prize was won by C. L. Collette. The special prize donated by W. T. Morgan, manager of the Raymond Lead Co., of Chicago, was won by Sam H. Moon, of Louisville, Ky. The winners in the different flights were as follows:

First Flight.—Paul Blatchford, first prize; T. N. Johnson, runner-up.

Second Flight.—W. Wickersham, first prize; H. M. Sedgwick, runner-up.

Third Flight.—F. Van Inwagen, first prize; Eugene Buehler, runner-up.

Fourth Flight.—C. D. Little, first prize; C. H. Bishop, runner-up.

Fifth Flight.—H. E. Keeler, first prize; L. R. Taylor, runner-up.

Sixth Flight.—J. M. Stannard, first prize; C. S. Pitkin, runner-up.

The individual scores by flights were as follows:

	Gross	Handicap	Net
First Flight.			
J. W. Watson	91	6	85
T. N. Johnson	101	13	88
Paul Blatchford	101	12	89
C. L. Collette	92	6	86
Second Flight.			
A. Wickersham	100	14	86
H. M. Sedgwick	104	17	87
E. W. Sanborn	108	18	90
D. E. McCabe	99	22	77
Third Flight.			
F. Van Inwagen	98	17	81
S. H. Moon	92	6	86
J. F. Tuttle	98	12	86
E. Buehler	104	13	91
Fourth Flight.			
C. D. Little	102	15	87
J. B. Berryman	119	22	97
C. H. Bishop	111	22	89
W. B. Dale	113	22	91
Fifth Flight.			
L. R. Taylor	108	15	93
C. R. Elliott	126	27	99
L. C. Huckins	106	16	90
H. E. Keeler	108	22	86
Sixth Flight.			
F. R. Bishop	134	30	104
J. M. Hale	119	22	97
J. M. Stannard	96	17	79
C. S. Pitkin	109	22	87
P. M. Munn	158	30	128

At the banquet in the clubhouse at 7 o'clock in the evening the winners received their prizes and congratulations. The association extended a unanimous vote of thanks to the management of the club for the use of its excellent links.

The next tournament of the association will be held at the Calumet Country Club on Wednesday, October 6th.

BUILDING OPERATIONS FOR AUGUST.

The building operations of 68 cities for the month of August make the most favorable comparison for the year to date. They show, as compared with August last year, a gain of 14 per cent. The building permits issued in these cities, as officially reported to The American Contractor, New York, total, $60,113,453 for August, as compared with $52,790,472 for August, 1914. Of course some gain might reasonably be expected, inasmuch as August, 1914, was the first month of the European war, when business throughout the United States, as well as almost everywhere throughout the civilized world was at first almost paralyzed. But the more interesting, and perhaps significant, feature of the August statement is that when comparison is made with 1913 there is also shown a gain of 6 per cent, the totals for August, 1913, being $56,711,937. Of the 68 cities reporting, 36 show gains. It is interesting to note that as a rule the larger cities make decided gains, New York increasing 44 per cent, Chicago 65 per cent and Philadelphia 51 per cent. Other notable gains are as fol-

lows: Cincinnati, 170; Dayton, 262; East Orange, 93; Hartford, 184; Manchester, 51; Memphis, 55; Milwaukee, 59; Portland, 78; St. Paul, 65; Spokane, 59; Springfield, Ill., 50; Syracuse, 57; Toledo, 52; Topeka, 227; Troy, 61; Utica, 172. The monthly report in details follows herewith:

	Aug., 1915.	Aug., 1914.	Per cent. Gain.	Per cent. Loss.
Akron	$ 499,010	$ 602,315	..	17
Albany	249,745	479,685	..	48
Atlanta	370,600	372,033	..	..
Baltimore	447,923	1,012,846	..	56
Birmingham	137,615	314,549	..	56
Buffalo	1,175,000	950,000	23	..
Cedar Rapids	125,000	282,000	..	56
Chattanooga	46,540	116,270	..	60
Chicago	9,513,150	5,769,450	65	..
Cincinnati	3,048,475	1,128,060	170	..
Cleveland	1,987,520	2,318,470	..	14
Columbus	544,895	647,325	..	16
Dallas	155,117	220,175	..	29
Dayton	403,890	111,643	262	..
Denver	179,810	150,620	19	..
Des Moines	150,500	111,150	36	..
Detroit	3,217,490	2,353,345	37	..
Duluth	262,051	238,023	10	..
East Orange	83,368	43,210	93	..
Ft. Wayne	176,530	153,800	14	..
Grand Rapids	281,765	268,677	5	..
Harrisburg	29,325	101,275	..	71
Hartford	528,934	185,990	184	..
Indianapolis	463,972	572,436	..	19
Kansas City	725,830	527,395	38	..
Lincoln	133,015	136,865	..	3
Little Rock	101,798	83,313	22	..
Los Angeles	1,001,980	2,081,396	..	52
Louisville	203,930	426,860	..	52
Manchester	206,765	137,255	51	..
Memphis	273,295	175,660	55	..
Milwaukee	1,073,659	673,729	59	..
Minneapolis	1,031,070	943,975	9	..
Nashville	84,843	91,441	..	7
Newark	569,441	3,196,233	..	82
New Haven	440,274	500,567	..	12
New Orleans	246,708	236,910	4	..
N. Y. City	16,201,843	11,268,535	44	..
Manhattan	7,960,328	4,476,176	78	..
Bronx	1,620,725	1,272,343	27	..
Brooklyn	3,999,697	4,292,600	..	7
Queens	2,456,775	1,020,758	141	..
Richmond	164,318	206,658	..	20
Oklahoma	86,820	99,115	..	13
Omaha	350,610	521,065	..	33
Paterson	182,827	221,958	..	18
Peoria	114,810	253,081	..	55
Philadelphia	3,993,625	2,642,810	51	..
Pittsburgh	740,265	1,127,069	..	34
Portland	728,970	409,390	78	..
Richmond	197,019	183,410	7	..
Rochester	772,174	808,457	..	4
Salt Lake City	213,360	480,045	..	55
San Antonio	181,260	170,050	6	..
San Francisco	970,090	1,415,271	..	31
St. Joseph	103,428	93,623	10	..
St. Louis	932,446	797,165	17	..
St. Paul	1,066,026	646,923	65	..
Schenectady	143,774	96,368	49	..
Scranton	88,779	185,388	..	52
Seattle	454,960	1,565,525	..	58
Shreveport	41,584	79,506	..	48
Sioux City	258,975	223,485	16	..
Spokane	50,335	31,585	59	..
Springfield, Ill.	109,500	72,800	50	..
Syracuse	404,000	256,948	57	..
Tacoma	53,378	139,460	..	61
Toledo	747,083	490,047	52	..
Topeka	66,719	20,399	227	..
Troy	82,465	51,275	61	..
Utica, N. Y.	235,985	86,670	172	..
Wilkes-Barre	55,032	58,391	..	6
Worcester	534,538	679,692	..	21
Total	$60,113,453	$52,790,472	14	..

Personal Mention

T. W. Little, vice-president of the Walworth Manufacturing Co., of Boston, is enjoying a well-earned vacation in the New England mountains.

W. S. Appleton, sales manager of Richmond Radiator Co., of New York City, was encountered in Boston last week by a representative of "Domestic Engineering."

J. F. Nichols, president of the Riverside Boiler Works, of Boston, is combining business with pleasure on a Pacific Coast trip. Mrs. Nichols is accompanying him.

John Pickering Putnam, president of the Securitas Manufacturing Co., of Boston, Mass., is visiting the Pacific Coast expositions. He is accompanied by Mrs. Putnam.

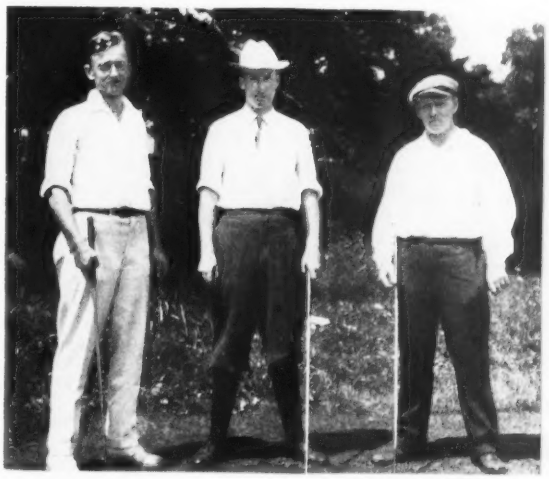
A. H. Canfield, president, and H. A. Mayse, secretary, of the H. O. Canfield Co., of Bridgeport, Conn., are devoting a few weeks to fishing at their camp in the Canadian wilds.

E. G. Kelly and his son Ralph Kelly, president and general manager of sales, respectively, of the L. B. Brass Co., of Peabody, Mass., are sojourning in the White Mountains at Conway, N. H.

Henry Erwin, secretary of Erwin & Co., Chicago, has just started on a thirty days' trip through the West. It is to be a combination pleasure and business trip, and his itinerary includes a week at the Exposition.

G. W. Best, manager of the Chicago office of C. A. Dunham Co., of Marshalltown, Ia., has just returned to his duties from a three weeks' vacation in the East, where he spent most of his time at New York City and Atlantic City. He says the vacation did him a world of good, and he looks it.

John Boylston, of the Western Kieley Steam Specialty Co., Chicago, gets a hankering for a smell of the briny deep ever so often, and the hankering must be satisfied in some manner. John is said to have no fear of anything that walks, flies or swims, but he evidently draws a line at things that dive, as he has recently satisfied his annual hankering on Lake Michigan. His wife accompanied him



At Eastern Trade Golf Association's Midsummer Meeting, Held at Arcola, N. Y.—From left to right they are: E. S. White, J. Barton Garfield and E. J. Hughes; all of New York City.

on his lake trip and visit to his brother's farm at Beulah, Mich.

George M. Snyder, of the Union Sanitary Mfg. Co., of Noblesville, Ind., passed through Chicago this week on his return from a thirty days' vacation spent in California. He put in considerable time at the Fair and studied the exhibits, particularly those in his own line, with great interest. On the return trip he stopped off two days at Denver, visiting some of his old friends in that city.

George D. Hoffman, president of the Hoffman Specialty Co., of Chicago, has just returned from a visit to his company's factory at Waterbury, Conn., where he was busily engaged for a period of four weeks in the company's testing department. It is a long way from Chicago to Waterbury, but some of Mr. Hoffman's friends claim that he is willing to circle the globe to test his valves, so eager is he to know that they really are what he desires them to be.

Just how long he has been in the harness nobody seems to know, although some are inclined to the theory that his history as an advocate of bath-room fixtures dates back to the day when wilderness and Indians were the

E. C. Smith, President of the E. C. Smith Mfg. Co., of Chicago.

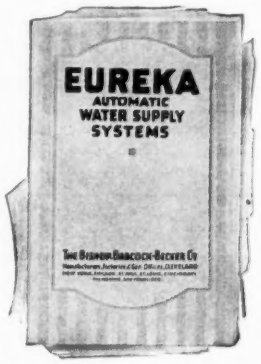
principal features of the North American landscape. Some of his friends will even intimate that he used to sell bath-room accessories to the copper-colored inhabitants of the New World. However that may be, there appears to be none in the trade who can remember when he was not pushing the sale of sanitary specialties. We refer to E. C. Smith, president of the E. C. Smith Mfg. Co., Chicago, makers of bath-room accessories. E. C. is one of the well known men of the "old guard" in the trade, with a coast-to-coast acquaintance. His genial personality and good fellowship have made for him many staunch friends in the world of sanitary engineering. In 1881 he was secretary of Rundle, Spence & Co., of Milwaukee, and in 1891 he organized the firm of Smith & Webster, of Chicago. Finally in 1898 he founded the present concern which bears his name.

John T. Cotter has been appointed plumbing inspector of Chattanooga, Tenn. Mr. Cotter succeeds L. E. Dearing. He assumed his new duties on September 15th.

J. Fabian, of Jersey City, N. J., has moved his plumbing and heating business from 156 Summit Avenue to 141 Monticello Avenue, where he now occupies a commodious store. He will be pleased to receive catalogues from the jobbers and manufacturers of plumbing and heating goods.

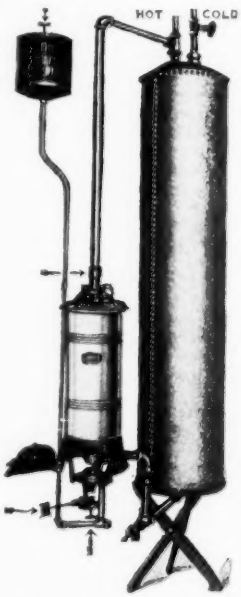
THE "EUREKA" AUTOMATIC WATER SUPPLY SYSTEMS.

The Bishop-Babcock-Becker Co., of Cleveland, Ohio, has just issued a new catalogue entitled "The Eureka Automatic Water Supply Systems," the front cover of which is shown in the accompanying illustration. This catalogue illustrates and describes in detail the "Eureka" line of water pumps and systems, consisting of all sizes and styles operated by electricity, gasoline engine, water pressure or by hand. In this catalogue special attention is directed to the "Eureka" electric automatic water supply system No. 1101, which is said to supply plenty of water year in and year out without attention, the automatic air injector automatically maintaining just the right proportion of air in the tank, so it is never necessary to drain the tank. This system is said to be entirely automatic and absolutely noiseless in operation, remarkably simple and durably constructed throughout, besides being compact, occupying but little floor space. It is shipped in only two parts and is quickly and easily assembled. Parties interested in water supply systems can obtain this valuable catalogue from the above-named company upon request, mentioning "Domestic Engineering."



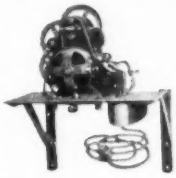
THE "HOTSTREAM" GASOLINE WATER HEATER.

The accompanying engraving illustrates the "Hotstream" gasoline water heater, manufactured by the Hotstream Heater Co., of Cleveland, Ohio. This heater is described by the manufacturers as one that "heats in a hurry without any fuss or worry." Some of the most notable features in its construction are: Jacket can be raised with the lift of a hand without releasing a nut or bolt. The large burner door, shown in the illustration, makes lighting easy without burning of hands or wasting of gasoline. The burner is easy to get at, easy to light, and it will burn indefinitely. It is made in two parts and can be cleaned by lifting off the cone top. A cleaning needle is furnished especially for use in cleaning. The one piece spiral coil is also a part of this heater, and the double jacket surrounding this coil is asbestos lined intensifying the heat and preventing loss of radiation. The jacket is enameled in an attractive blue color, which, it is said, prevents it from rusting and corrosion. Parties who have not yet seen this heater, can obtain full particulars from the above-named company upon request, mentioning "Domestic Engineering."



THE "MINNEAPOLIS" A. C. MOTOR.

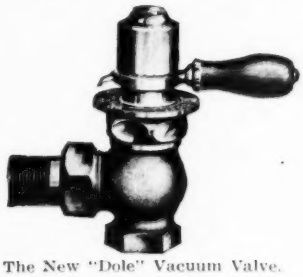
The "Minneapolis" alternating-current motor, shown in the accompanying illustration, is part of the "Minneapolis" heat regulator, made by the Minneapolis Heat Regulator Co., of Minneapolis, Minn. This motor is designed to operate directly from the house lighting circuit. It operates with 110 volts, 60 cycle alternating current, but a small transformer is mounted on the bottom of the case and this cuts down the voltage of the current, which operates the thermostat and magnet coils. In describing this motor the manufacturers state that "it is furnished complete with transformer in one unit, making the installation very simple as it is only necessary to connect the thermostat wires to the motor and screw plug into the lamp socket. There are thus no confusing connections to a transformer as these are all made in the 'Minneapolis' factory." Heating contractors who are not yet familiar with the "Minneapolis" electric non-winding motors, can obtain a most attractive folder describing them, upon application to the above-named company.



The A. C. Motor.

THE NEW "DOLE" VACUUM VALVE.

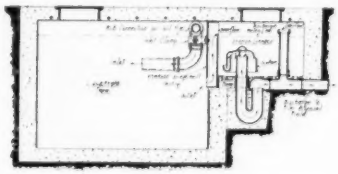
The new "Dole" packless graduated vacuum valve, which has just been placed on the market by the Dole Valve Co., 208 North Fifth Avenue, Chicago, has retained all the commendable features of previous "Dole" valves, and several new ones have been added, one of the most notable of these being the following: The top or bonnet of the valve has been lowered 1½ inches, bringing it on a level with or below the top of the radiator when used for top supply. This valve is adjusted at the factory and is sent out all ready for installation on the job. A glance at the accompanying illustration will show that it is made in a most attractive design. Parties interested in vacuum heating, and who have not yet seen this valve, can obtain full particulars from the above-named company upon request, mentioning "Domestic Engineering."



The New "Dole" Vacuum Valve.

CITY SEWERS FOR COUNTRY HOMES.

The solution of the sewage disposal for country homes is always of interest to plumbers catering to the farming trade. The accompanying illustration will, therefore, prove particularly interesting to them. It is a sectional view of the Kewanee Sewage Disposal System, manufactured by the Kewanee Private Utilities Co., of Kewanee, Ill. This system is the result of a long series of thorough tests and applications of scientific facts. The apparatus has, in the opinion of the manufacturers, reached a point where it is reliable in every respect. Its different parts have been made with such care that any plumber can easily install it without making mistakes. The installation of this system will pave the way for a good plumbing contract.



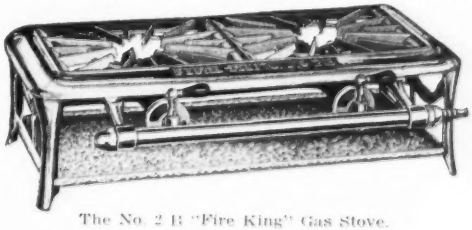
The Kewanee Sewage Disposal System.

THE "ORCUTT" PIPE HANGER.

The accompanying illustrations show the "Orcutt" pipe hanger, manufactured by the Orcutt Pipe Hanger Co., Factories Building, Toledo, Ohio. This new device is made in one piece of ¾ and ⅞-inch hoop steel, with four sharp V-shaped reinforced prongs to be driven into the wood at any height desired. In describing it the manufacturers state "that the arms are of sufficient length to allow the pipe to be suspended from a joist, and the construction of the prongs gives them such a hold in the wood that no vibration of the pipe can jar them loose." An idea of the strength of this hanger can be gained by a glance at the accompanying illustration in which a man, whose weight is said to be 230 pounds, is supported by an inch and a half pipe carried on one "Orcutt" pipe hanger. These hangers are finished in black enamel, which protects them against rust. Interested parties can obtain full particulars from the above-named company upon request, mentioning "Domestic Engineering."

THE "FIRE KING" GAS STOVE.

The accompanying cut shows the No. 2 B, two-burner "Fire King" gas stove, manufactured by A. Weiskittel & Son Co., of Baltimore, Md. The dimensions of this stove are: Top, 11¾ inches wide; length, 22¾ inches; height, 6¾ inches; and it can be furnished with white enameled instead of galvanized drip pan, if desired. The stove is neatly nickel-plated and polished. Parties interested in this line of goods can secure complete information from the manufacturers on request, mentioning "Domestic Engineering."



The No. 2 B "Fire King" Gas Stove.

Steel and Iron.

The entry of American railroads into the market for steel rails for next year's delivery was a feature of the week's developments in the steel industry. Having been warned that, unless specifications were placed soon, the mills would be unable to furnish early delivery in 1916, the larger railroads began work on their requirements with the result that rail orders from domestic sources during the past week totaled 94,000 tons. The Steel Corporation booked 43,000 tons for the Louisville & Nashville and 20,000 tons for the Atlantic Coast Line. The Santa Fe ordered 30,000 tons from the Illinois Steel Co. Russia has bought 19,000 tons at Chicago, making the total rail orders for the week 115,000 tons with more business in sight. The demand for steel rounds continues to be very brisk, but business is restricted owing to the inability of the mills to furnish early deliveries. Prices for pig iron in all districts show a marked tendency to advance for both last quarter and first half delivery. Furnaces are rapidly disposing of their last quarter productions and buyers, who are now entering the market, are facing advances of 50 cents to 75 cents per ton. Two large sales of basic were made last week. The United States Steel Co. closed with Ohio furnaces for 10,000 tons basic for delivery in November and December and the Lukens Iron & Steel Co. is understood to have arranged with eastern Pennsylvania furnaces for 50,000 tons basic for delivery over the first quarter. In the Pennsylvania valley there has been a good demand for Bessemer, sales during the week totaling 13,000 tons, with $16 furnace established as the new minimum price. Basic is now firmly fixed at $15 furnace, although some business that has been pending may be closed this week at $14.75 valley. Birmingham producers are quoting for 1916 shipment at $12.50 per ton. Quotations are as follows:

No. 2X Northern Foundry, New York	$16.75 to $17.50
No. 2X Northern Foundry, Buffalo	15.50 to 16.00
No. 2 Southern Foundry, Birmingham	11.50 to 12.50
No. 2 Southern Foundry, Cincinnati	14.40 to 14.90
No. 2 Southern Ohio Coke, Cincinnati	14.25 to 14.75
No. 2 Northern Foundry, Chicago	13.50 to 14.00

Copper.

During the past week electrolytic was very dull. Consumers have been in the market and offered 17 cents for the metal but sellers held firmly for 17½ cents. It is understood that buyers are seeking to cover additional requirements caused by increased operations but otherwise are well covered for the future. The existing depression in foreign exchange prevents selling for export as England is not in urgent need of the metal and would not buy under present circumstances. Authorities estimate the August production at 145,000,000 pounds, of which about 112,000,000 pounds went into domestic consumption and exports, resulting in about 33,000,000 pounds being added to stocks held by producers. While copper selling interests have been able to maintain the price above 17 cents, it is generally admitted that the upward spurt of a fortnight ago was not effectual in forcing consumers to buy, and while consumers in their reports do not look for cheaper copper in the near future it is felt that the metal will not show any greater firmness over the rest of the year because of the increase in stocks in producers' hands.

Tin.

The continued unsettled condition of foreign exchange resulted in an inactive market in tin. Buyers have lost interest in future, but importers are not offering Straits shipments at concessions. It is felt that with exchange nearly normal the metal at present prices would represent good buying values and importers are inclined to hold on to supplies. It was announced that new regulations affecting tin export would be effective September 20th, and this proved to be a disturbing element as it is likely to bring about a decrease in the consumption of tin. It was apparent that manufacturers of tin products are not pleased with the prospect of placing their export trade under the supervision of Great Britain, and as the British Government holds the upper hand in the matter of block tin supplies, it is likely that export trade will be relinquished for the present. Spot tin opened the week at 33 cents and closed at 33½ cents. Arrivals at New York during the week totaled 1,150 tons. Stocks afloat to this country at the close of the week amounted to 5,153 tons.

Lead.

There was but little trading in lead last week despite the offering at concessions by outside interests. On Thursday the leading interest announced a reduction of $4 a ton, bringing the figure down to 4.70, but outsiders quickly met the cut by lowering their price to 4.65 cents. This did not develop any improvement in business, however, but tended to unsettle the market.

Spelter.

Trading in spelter last week was confined to spot and nearby deliveries and as the demand was light not much metal was taken out of the market. Holders are offering at reductions, but consumers do not appear to be interested at present. While spot is quoted at 14 cents, New York, and 13¾ cents, East St. Louis, October shipments are quoted at 12½ cents, New York, and 12¼ cents, East St. Louis.

Old Metals.

Weakness in the markets for copper, lead and zinc has resulted in a corresponding condition for old metals. Selling prices are quoted approximately as follows:

Copper, heavy cut and crucible	15¾ cents
Copper, heavy and wire	15½ cents
Copper, light and bottoms	13⅞ cents
Heavy machinery composition	12⅛ cents
Brass, heavy	10¼ cents
Brass, light	8⅞ cents
No. 1 clean brass turnings	13½ cents
No. 1 composition turnings	11⅞ cents
Lead, heavy	4.50 cents
Tea lead	4 cents
Zinc scrap	10⅞ cents

Just Country Relatives.

She—"Been away in the country, haven't you?"

He—"Yes, visiting some people I used to know when I was a boy."

She—"Particular friends?"

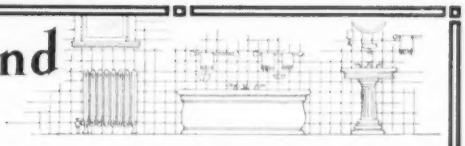
He—"Oh, no; father and mother."—Yonkers Statesman.

In Style.

"This is a fine way for you to come home!" said Mrs. Twobble witheringly.

"Yesh, 'tis, m' dear," replied Mr. Twobble, trying to look important. "Frien' brought me home in his limoushine."—Birmingham Age-Herald.

Among the Plumbing and Heating Contractors



Illinois

Chicago and Vicinity.

The plumbing systems for twenty-five cottages to be erected on Loyola Avenue, west of North Clark Street, will be installed by L. J. Keefe, of 1222 Grace Street.

M. J. Madigan, of 557 North Parkside Avenue, will install the plumbing in three apartment houses, to be built at 303, 307 and 311 Lockwood Avenue.

Frank Gerke, of 3206 West Montrose Boulevard, has been awarded the contract for the installation of the plumbing system in a two-family apartment building to be erected at 3324 Wilson Avenue.

The steam heating contracts for twenty-nine buildings, for stores, offices and residence purposes, which will be erected at Lake Forest, Ill., have been awarded to the L. H. Prentice Co., of 330 Sherman Street. The plumbing contract went to the E. Baggot Co., of 17 East Lake Street.

David Whiteford, of 1213 West Randolph Street, will install the plumbing system in a two-story residence to be built at 410 North East Avenue, Oak Park.

L. Nelson, of 5413 North Clark Street, will install the plumbing in a nine-flat apartment, to be built at Bernard and Belle Plaine Avenues.

The Chicago Steam Heating Co., 169 North Jefferson Street, has recently secured the contract for the installation of the steam heating system in a twelve-family apartment building to be erected at 2720-24 Kimball Avenue.

C. L. Willey, of 1110 West Sixty-ninth Street, has secured the contract for the installation of a heating system in a residence at 6425 South Mozart Street.

J. Emblen, of 2033 West Sixty-ninth Street, has been awarded the contract for the installation of a heating system in a residence at 2112 West Sixty-ninth Place.

N. P. Miller, of 7046 South Park Avenue, will install an up-to-date heating system in a new residence at 7624 South Morgan Street.

The Atlas Heating Co., of 4532 Cottage Grove Avenue, will install a heating system in the new residence at 8131 South Ada Street.

Gustave Davis, of 5811 Wentworth Avenue, has secured the contract for the installation of a plumbing system in a two-family flat building at 5533 South Lincoln Street.

John Cepican, of 1913 West Fifty-first Street, will install the plumbing in a two-family flat building at 5441 Lincoln Street.

E. C. Oakes, of 3634 Fullerton Avenue, will install a plumbing system in a two-family residence at 1106 North Hamlin Avenue.

J. J. Delehant, of 652 West Forty-seventh Street, will install the plumbing in a new bungalow and garage at 6735 Euclid Avenue.

Charles Mundt, of 2202 Milwaukee Avenue, has secured the contract for plumbing in a two-family residence at 1122 North Mozart Avenue.

The heating and plumbing contract for a jail and the sheriff's residence, at Urbana, has been awarded to L. T. Hagerman & Co., of that city.

New York

New York City.

The John Richman Plumbing Contracting Co., of Southern Boulevard, New York City, has secured the contracts for plumbing in a five-story apartment block at 187th Street and St. Nicholas Avenue, a six-story building on 111th Street, a block of stores at 184th Street and Audobon Avenue, and a thirty-five apartment building at 180th Street and Mohegan Avenue.

At Bronx Master Plumbers' Recent Outing.—From left to right they are: H. C. Oswald, W. C. Boyle and M. Wheeler; all of New York City.

C. E. MacKeown has purchased the plumbing and heating business, formerly conducted by Alexander J. Smith at 1424 Madison Avenue, New York. Mr. Smith has retired to his farm up state.

John Weil has engaged in the plumbing and heating business at 852 Amsterdam Avenue, New York City. He would like to receive catalogues and other literature from the trade.

Joseph W. Rowan, of New York City, has a large number of contracts on his books, the most notable being the plumbing in the following apartment buildings: One at 170th Street and Webster Avenue for Sikora Realty Co., one at 180th Street and Arthur Avenue for J. W. Realty Co., one at Stebbins and Westchester Avenues for Foxvale Realty Co., one at 176th Street and Mt. Hope Avenue for K. & R. Construction Co., one at Seaman Avenue and 207th Street for Smada Construction Co., one at 231st Street and Heath Avenue for Frank Willets, one at 176th Street and Marmion Avenue for Kirwan Building Co., one at Bryant Avenue and 165th Street for Mack Construction Co., one at Sheridan Avenue and 165th Street for C. T. Streeter Construction Co., and one at 182nd Street and Grand Concourse for Alex. Wilson.

Ohio

Cincinnati and Vicinity.

The heating system at the old National Guard Armory on Freeman Avenue is to be remodeled and brought up to date, in anticipation of an unusually active winter's work by the guardsmen. The board of county commissioners will receive sealed proposals for handling the work including heating until October 1st, at 12 o'clock noon. Plans and specifications are on file with the board at the court house.

One reason for the unusual amount of small residence work which has been available in Cincinnati lately is seen in the comparative statement of the building commissioner's office for the month of August, according to which Cincinnati not only did not lose ground in building, but actually made a large increase as compared with the last two years. The number of permits issued was 1,384; which covered improvements of an estimated value of $3,048,475, as compared with 1,227 permits, valued at $1,128,060, in 1914, and 1,053 permits and $504,130 in 1913. Of course, several good-sized jobs helped to swell the total, but small jobs predominated, as the number of permits indicates; and inasmuch as a number of the larger cities of the country showed decreases in the amount of August building, the city has good cause for satisfaction over the showing made. The first eight months of the year, completed on August 31st, were equally good by comparison with the corresponding periods of 1913 and 1914, the figures being as follows: 1913, 8,652 permits, $4,048,066; 1914, 9,444 permits, $7,207,348; 1915, 10,999 permits, $9,991,239.

The contract for the installation of a complete heating system in the courthouse and county jail at Delaware, O., was recently awarded to Harry W. Clark, on his bid of $3,650. The contract calls for the completion of the work in sixty days.

An important matter now being taken care of by the city authorities of Urbana, O., with the assistance of Plumbing Inspector Sheridan Beverly, is that of compelling connections with the new $100,000 sanitary sewer recently completed in Urbana. All property owners on the line of the sewer have been notified to make arrangements for connections at once, and indications are that the plumbers of Urbana are going to have the busiest fall season in their history in consequence. Forms for the new plumbers' bonds required under the Urbana ordinance have been approved, and licenses are being issued.

Among the contracts recently let on the new Miami Hotel, in Dayton, O., was that for plumbing, which was awarded to M. J. Gibbons.

Kentucky

Louisville and Vicinity.

Jacob Isaacs, of First and College Streets, is installing plumbing in the Fourth District Police Station, at Twenty-eighth and Main Streets, consisting of 3 toilets, 6 lavatories, 4 spouts, 1 bathtub, as well as several other fixtures.

Bywater Bros., of 512 South 6th Street, have recently been awarded the plumbing contracts on two churches and a school house, namely, the Holy Cross Church, the M. E. Church at Fourth and St. Catherine Streets, and for the Seventeenth and Duncan Street School.

Massachusetts

The secretary of state at Boston has issued incorporation papers to the Prescott-Cutler Co., of Spencer, a $40,000 corporation, which proposes to carry on a general plumbing, heating and jobbing business. Edward P. Cutler, of Spencer, is president; Harry R. Prescott, of Spencer, treasurer; and Ella F. Seward, of Worcester secretary.

All of the bids received by the municipal council of Lynn for the installation of heating apparatus in the Highland School in that city exceeded the available appropriation and were turned down. The bids ranged from $4,600 to $5,200.

A new school house is being erected in the town of Whately, in western Massachusetts, to care for the increasing school population. The Mutual Heating Co., of Amherst, has the contract for plumbing and heating work.

Notice has been given of the dissolution of the partner-

Members and Guests Attending the Annual Outing of the Master Plumbers' Association of Lynn, Mass., Held at the

ship heretofore existing between Henry F. Bimbedil and James H. Butler, under the firm name of the Hub Plumbing & Heating Co., 4282 Washington Street, Boston. The business is to be continued under the same name by Bimbedil.

An appropriation for the installation of a heating system in the Memorial Building, at Lowell, which was nearly destroyed by fire some time ago, is still before the city council. It is expected that the work will cost from $8,000 to $12,000.

The Haverhill House Plumbing & Heating Co., of 97 Washington Street, Haverhill, is busy on these contracts: Plumbing for the City Hospital, $2,500; steam heating for the Presbyterian Church; both plumbing and heating for Flynn's Merrimac Theater and also for two three-story houses on Grove Street.

Connecticut

The following contracts have been announced by Bridgeport plumbers: Joseph Mullins & Co. will install plumbing and heating in a new two-family house on Hawley Avenue for R. L. Booth, as well as plumbing and heating in a building on Laurel Avenue for the Peoples Presbyterian church; Rehill Plumbing & Heating Co. has the contract for plumbing and heating in four three-family houses on Edwin and Pequonnock Streets for H. W. Cowles; C. J. Donnelly has secured the plumbing and heating contracts for a house on Midland Street for F. H. Seeley; J. J. Scanlon will install plumbing and heating in a moving picture theater for Samuel Greenbaum; Sanford & Rasmussen have secured the contract covering the plumbing and heating in eight houses to be erected on Garfield Avenue for W. A. Halliday, each house to be arranged for two families, as well as the plumbing and heating in two houses on Stratford Road for A. L. and John Johnson; Carlson & Benson were awarded the plumbing and heating contracts for a house on Blackman Place for H. L. & L. R. Blackman; Joseph Glass will install the plumbing and heating in two double houses on Hawley Avenue for Edward Albrecht and the plumbing in a nine-apartment house on Sanford Avenue for Nathan Nussenbaum; G. L. Beltner will install both plumbing and heating in a bakery on Housatonic Avenue being erected for Adams & Roth.

The American Bank & Trust Co., of New Haven, has awarded the contract for plumbing and heating its new bank building to Duncan & Bryne, of East Grand Avenue, of that city. This firm was the lowest of about a dozen bidders.

H. Cohn, of New Haven, has the contract for plumbing and heating two houses to be erected on West Rock Avenue for David Sonken.

H. Kravet, of New Haven, will install the plumbing and heating in two two-apartment houses on Elm Street being erected for A. W. Penney.

N. F. Wilcox, of New Haven, has secured the contract for plumbing and heating in a four-apartment house on Avon Street being erected for J. P. Jenson.

Buckingham & Wells have been awarded the contract for the plumbing in the Christ church parish house at West Haven.

Bacon Bros., of Middletown, have been awarded the contract for the plumbing and heating installations for the new dormitory to be erected on Mount Vernon and Cross Streets for Wesleyan University.

Pennsylvania

Philadelphia and Vicinity.

Flynn & Love, 1506 Samson Street, were awarded the contract to install plumbing and heating in Schmitt's loft at Third and Market Streets on their bid of $8,000.

Schoellheimer & Reutter, 1314 Ridge Avenue, will install both plumbing and heating in the Y. M. C. A. building at 17th and Master Streets.

Wm. H. Davenport, of Conarroe Street, has secured the heating contract covering the Brown mansion at St. Martin's, Pa., for the Houston estate.

Wm. E. Johnson, of Norristown, Pa., has been awarded the contract covering the installation of the heating and plumbing in a new bungalow being erected at Germantown Pike.

P. L. Moyer, of Perkasie, Pa., will install plumbing and heating systems in the new cigar factory being erected at that place by O. Eisenlohr & Bro.

Corbit Bros., of 602 Washington Street, Reading, Pa., have secured the contracts for plumbing a public comfort station in the city park and Mrs. Day's residence at Wyomissing.

Ferncroft Inn, near Middleton, Mass., August 26th, as reported in the September 4th Issue of "Domestic Engineering".

Washington

Seattle and Vicinity.

The Central Realty Co., Pantages Theater Building, Seattle, has announced its intentions of constructing a three-story, brick veneer and mill construction apartment house on Bellevue Avenue, between Pine and Olive Streets. Plans for the structure, which will cost about $60,000, are being prepared at this time by Architect W. J. Jones, Central Building. Bids for the general and subcontracts including plumbing, heating, ventilating, etc., will be received the latter part of September.

The Rantman Plumbing & Heating Co., 118 King Street, has secured the contract for connecting the 42-story L. C. Smith Building with five-inch steam service mains and two and one-half return mains, together with pump and receiver in the Pacific Block. When the installation is completed the two structures will be furnished with heat from one heating plant which is located in the Smith Building. Consideration approximately $2,500. This company also will install both plumbing and heating in the Juvenile Detention Home, under construction at the corner of Broadway and Spruce Street, for the King County Court. This structure complete will cost over $30,000; the plumbing and heating installations will cost $2,161. Another job of consequence being handled by this concern is the plumbing and heating installations which are being made in a two-story business block under construction on the corner of First Avenue and Spring Street for the Puget Mill Co. Consideration, $3,000. The largest job, which fell to the lot of the Rantman Co. recently, covered the heating and plumbing contracts for an apartment house at Queen Anne Avenue and Aloha Street, for Browne & Cassels. The structure will contain twenty-four apartments and the cost of the installations is estimated at $7,000.

The D. H. King Plumbing & Heating Co., 214 Columbia Street, has secured the contract for installing plumbing in a $12,000 residence under construction at 37th Avenue and James Street for Harvey B. Wilbur. Contract price, $1,000. This concern also has the contract for installing plumbing in a 17-room apartment house under construction on the corner of Marion Street and Summitt Avenue for F. F. Adams, the work to entail the expenditure of about $4000; and the contract for both plumbing and heating in a pretentious residence under construction at 5005 22nd Avenue, Northeast, for Prof. Gowan, of the University of Washington. Consideration $1,000.

Architect George W. Lawton, Alaska Building, will shortly receive bids for the installation of plumbing and heating in the $125,000 Masonic Temple to be built on the corner of Harvard Avenue and Pine Street. The proposed structure will be three stories in height, of brick and terra cotta construction.

Architect Andrew Willatzen, Boston Block, will shortly receive bids for the installation of plumbing, heating and vacuum cleaning system in a $15,000 residence to be built on the corner of Broadway and Edgar Street, for Judge Jeremiah Neterer, of the Federal Court. The structure will be two stories and basement and of brick construction.

S. Normile, 314 James Street, has been awarded the contract to install a heating system in a residence being erected at 37th Avenue and James Street for Harvey B. Wilbur.

Architect J. O. Taft, 2334 10th Avenue, North, will soon receive bids for the plumbing, heating, ventilating, etc., of a seven-story, brick and terra cotta hotel building to be built at Seventh Avenue and Union Street for the Imperial Hotel Co. at a cost of $135,000. The general contract has already been let to the Puget Sound Construction Co., L. C. Smith Building, and this concern has begun wrecking the old structure which stands on the site of the proposed hotel. A vacuum cleaning system is also included in the subcontracts.

School District No. 2 Colville, has awarded the contract for the installation of plumbing and for modernizing the heating plant, to B. S. Hebden, of Spokane.

Idaho

The Board of Education, Lewiston, has awarded the contract for the installation of septic tanks, toilets, plumbing, etc., in the Lewiston School, as follows: Installation of toilets, septic tank and dry well, Robert Meyer, of Clarkston, $1,083; plumbing, A. F. Peterson Lewiston, approximately $1,000.

The contract for alterations for the Bickel School at Twin Falls, has been awarded as follows: Repairs to heating plant, Frank Healey, Twin Falls, $2,700. Plumbing, L. J. Wight, Twin Falls, $1,800.

Oregon

Portland.

Houghtaling & Dougan, Henry Building, Portland, Oregon, have awarded general contract to Le Doux & Le Doux, 189 Simpson Street, Portland, for the erection of the $90,000 building for the Pocatello Order of B. P. O. E. The proposed structure will be four stories and of steel frame construction. The sub-contracts, including plumbing and heating, will be let the last of September. Bids are now being received for same.

The Jacobsen-De Temple Co., 308 Davis Street, Portland, has the contract for both plumbing and heating in a large residence to be built in that city for Dr. C. J. Smith. The contract will approximate $5,000. This concern also has the contract for heating and plumbing in a business block to be built at the northeast corner of East 11th and Division Streets for Milton Hagar. A steam heating plant will be installed.

California

San Francisco.

As was to be expected the official building record for San Francisco for the month of August runs considerably below that of July, which month included permits for some rather large buildings. August was, however, ahead of the months of May and June, and runs just about at the average mark for the last twelve months. The total of the building operations for the six months ending August 31st was a little less than eight million dollars as compared with about ten million dollars for the corresponding six months of 1914 and about eleven million dollars for that period in 1913.

Plans have now been completed for the following apartment houses: A four-story and basement brick and steel apartment for the Girard estate to cost $65,000, and a

three-story and basement Class C structure to be erected by Frank M. Scoonover on Mission Street near Seventeenth Street.

Los Angeles.

While the general business situation in Los Angeles has been considered rather slow, the building outlook appears to be improving. The total value of building permits issued during the month of August shows an appreciable increase over the value of the permits issued during the earlier months of the summer. The August permits are, to be sure, below those of the same month for last year, but the percentage of decrease is much less than has been the case in previous months.

Work has been started on the Henry Heilman group of eighteen bungalows to be erected on a plot of ground 120x215 on Hollywood Boulevard, Los Angeles, which will be known as St. James Court. Each bungalow will contain three rooms and bath. A fountain will be placed in the center of the court. The cost of the eighteen buildings is placed at $35,000.

Work will begin about the middle of the month on the most expensive apartment house that has been built in Los Angeles for a long time. The building is to be erected by James H. Edmonds on Sixth Street opposite Westlake Park. It will cost approximately $250,000.

Crowell & Sutton, 744 South San Pedro Street, have been awarded the contract at $3,622 for the plumbing to be installed in the Cahuenga Street school building.

H. J. Crawford, 730 South Olive Street, has been awarded the contract for the plumbing to be installed in the 68th Street school building at $3,582.

All bids received for the erection of the 13th Street school buildings were ordered rejected by the Board of Education. Plans and specifications will be revised and new bids advertised for.

Bonds to the amount of $40,000 for the erection of a new school building in the Cienega School District were voted at a special election held September 7th.

Bids will be received up to September 23rd for the erection of a new brick school building on the 24th Street school site. Plans and specifications were prepared by Architects O. P. Dennis and H. H. Hewitt.

John T. Newell, 136 West 17th Street, Los Angeles, has been awarded the contract at $9,703, for the heating to be installed in the new buildings to be erected on the site of the Franklin high school, Garvanza.

Other Cities in the State.

The following bids have been submitted for the heating and ventilation plant for the new school building being erected at Stockton: Edward Gnekow, $1,733; Pahl & Harry, $1,798; Miller Hayes, $1,840; and the Gilly-Schmidt Co., $1,914. The bids have been taken under consideration, and the contract will be awarded within a few days.

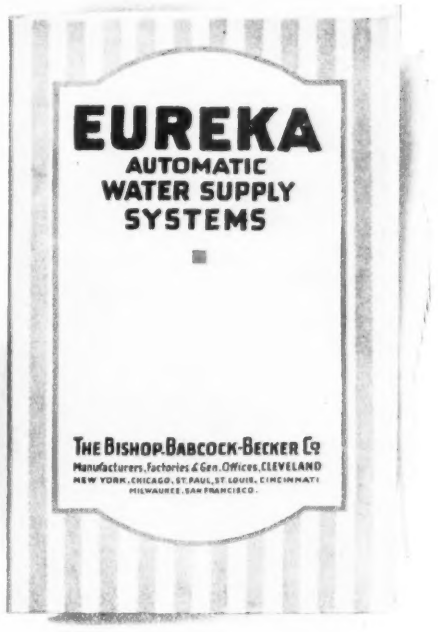
The Woman's Improvement Club of Merced is planning to install a public swimming pool.

Gases causing fire have done considerable damage to the septic sewer tank on the City farm of Pasadena. The necessary repairs will cost about $4,000.

An ordinance has been passed by the city council of Stockton providing for the purchase of certain public lands to be used for a sanitary sewage disposal plant, including a system of septic tanks, pumping plant, etc.

The Board of Supervisors of San Diego has called for bids for the furnishing of a pumping plant, pipe line and the necessary buildings for use at Collier Park.

Bids will be received by the Board of Trustees of Calexico up to September 23rd for the erection of a new school building.



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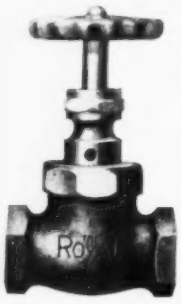

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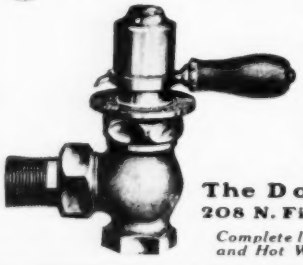

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Plumbing Department.

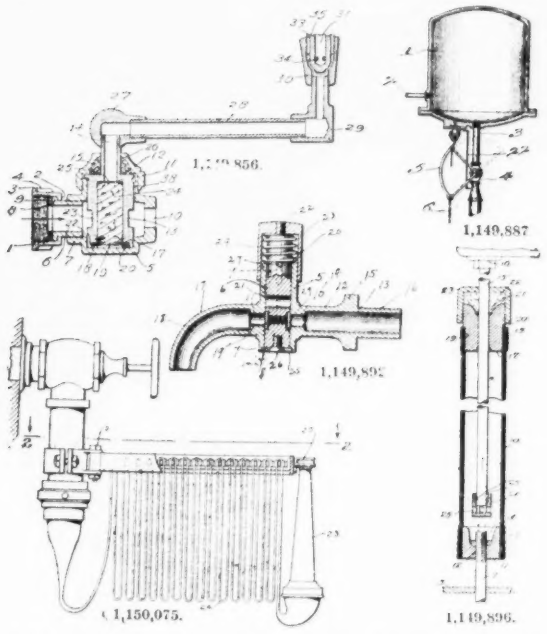
1,149,856. Sanitary Water-Fountain. James J. Piper, Colorado Springs, Colo. A water fountain for attachment to a delivery valve, and comprising a casing of approximately cylindrical form having oppositely arranged inlet and outlet ports, means at the inlet port for permitting the casing to be connected to the valve, a cylindrical valve body fitting the casing and rotatable therein, and chambered longitudinally and having a hollow stem extending above the casing, a tubular handle connected with the stem, and having a delivery nozzle at its outer end, the valve body being adapted to contain filtering material, a screen at each end of the body, said body having at its lower end a radial recess and having a longitudinal groove leading upward from the recess for placing the interior of the body in connection with the inlet port of the casing when in register therewith, said body having oppositely arranged circumferential recesses for placing the inlet and outlet ports in communication when the groove is out of register with the inlet port, and means in connection with the valve body and the casing for limiting the movement of the body.

1,149,887. Flushing Apparatus. Wade Barnett, New Orleans, La. In an apparatus of the character described, the combination of an inclosed reservoir in open communication with a source of fluid supply, a delivery pipe connected to said reservoir, a self-closing valve controlling the outlet through said delivery pipe, a connection for operating said valve, a casing in constant communication with said reservoir, a latch slidably mounted in said casing and disposed angularly with respect to the path of said connection, said latch being arranged to engage said connection and prevent closing of said valve, means mounted in said casing and actuated by the fluid pressure to normally project said latch into engagement with said connection, and means for moving said latch to disengage said connection and retreat out of the path of the same whereby to permit the valve to immediately close when the pressure falls below a predetermined degree, substantially as described.

1,149,892. Faucet. Israel S. Blattner, McKeesport, Pa. A faucet comprising a valve casing provided with vertical slots at diametrically opposite points therein, inlet and outlet sections formed integral with said casing and projecting in opposite directions, the bores of said inlet and outlet sections being reduced at the intersection of the latter and the casing, a spring controlled valvular member shiftable vertically within said casing and provided with a transverse opening adapted to register with the reduced bores of said inlet and outlet sections, split sleeves surrounding a reduced portion of the valvular member below said transverse opening, a spring mounted in an opening in said valvular member and bearing against said split sleeves, a pin adapted to lock said sleeves against rotary movement, a plate removably secured to the bottom of said valvular member, the lower edge of said casing being offset to provide an annular seat therein, said seat receiving said plate therein and limiting the upward movement of the valvular member, a cap secured to the top of said valvular member and inclosing the upper portion thereof, a spring secured between said cas-

ing and said cap, and a pin projecting at its terminals radially from said valvular member and through the slots in said valve casing to also limit the movement of the valvular member.

1,150,075. Hose-Rack. John H. Stillwaggon, Richmond Hill, N. Y. In a device of the kind described, a frame, a rod secured in the frame, a trough-like member secured on the rod, and a plurality of hose-supporting arms pivoted on the rod and normally resting upon an edge of the trough-like member, and means for turning the trough-like member around the rod, said means being detachably secured to the trough-like member and to the rod.



1,149,896. Attachment for Flushing Tanks. Benjamin Lockhart Chambers, Fruita, Colo. A device of the character specified, comprising in combination with the flushing tank, the inlet pipe thereof, and the supply pipe therefor, of a tubular casing of flexible material arranged between the supply pipe and the tank, said casing being connected at its lower end to the supply pipe with a fluid tight joint and the inlet pipe of the tank extending through the upper end of the casing to near the bottom thereof and having a fluid tight connection at its upper end with the casing, the lower end of the inlet pipe being spaced apart from the upper end of the supply pipe, a cap fitting over the lower end of the inlet pipe and having radial openings, the inlet pipe having openings registering therewith, and the tubular casing being of greater diameter than the inlet and supply pipes to form an annular chamber between the said pipes and the casing, said fluid tight joint comprising filling nuts arranged between the ends of the casing and the inlet and supply pipes, said nuts fitting within the casing, clamping sleeves engaging the casing outside of each nut, the upper ends of the nuts being recessed, and the supply pipe extending to near the upper end of the lower end, and a packing between the upper end of the casing and the inlet pipe.

1,150,098. Lavatory Apparatus. William Bunting, Brookline, Mass. A dispensing apparatus for a lavatory basin comprising an operating lever adapted to be arranged at the front thereof, and normally to be held in position to be pushed aside by the body of the user, a

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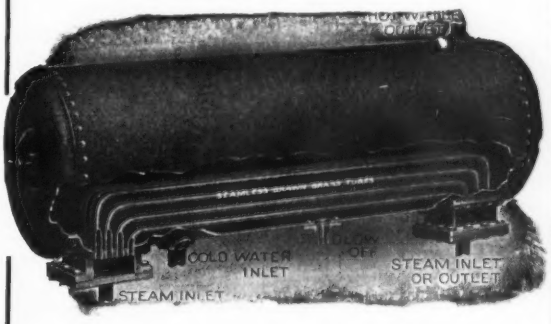

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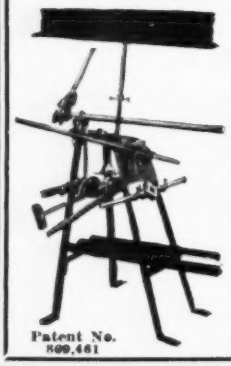

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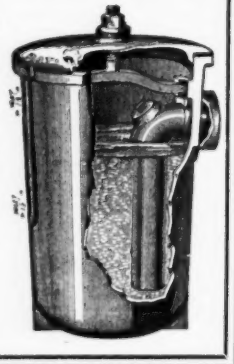

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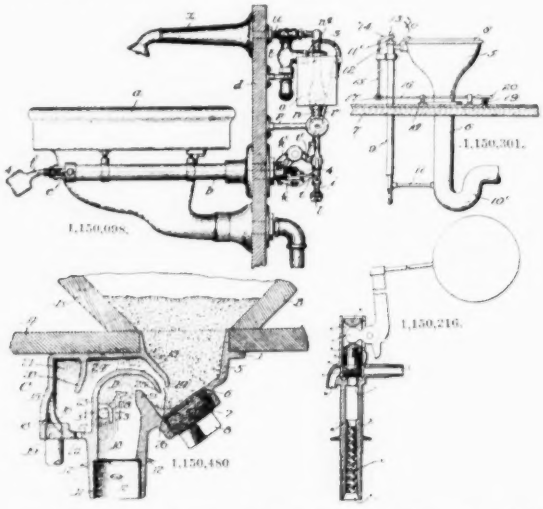
pump connected to said lever, a liquid soap receptacle connected to the intake of the pump, a discharge pipe connected to the discharge of the pump and adapted to extend over the basin to deliver the soap thereto when the lever is moved in one direction, and means to return the lever to its normal position, substantially as described.

1,150,301. Closet Attachment. James Palmer, Madison, N. J. A fixture comprising a vertical supply pipe, a valve stem extending above the end of the pipe and having a head, a rod slidably mounted for movement longitudinally of the pipe and guided from the pipe and having at its end an angularly disposed yoke which engages under the head, and a lever fulcrumed adjacent the pipe at one side thereof and disposed transversely of the pipe and pivotally connected with the rod at the opposite side of the pipe.



1,150,480. Sand-Trap. Cletus N. Allerding, Mansfield, Ohio, assignor to the Ohio Brass Company, Mansfield, Ohio, a Corporation of New Jersey. In a device of the class described, the combination of a casing forming a chamber having a discharge outlet, a sand-feeding chamber having communication with said outlet for exposing a portion of the sand adjacent the outlet, means restricting the flow of the sand, and means for directing a stream of air against the surface of the exposed portion of the sand to blow the surface sand away from the exposed portion.

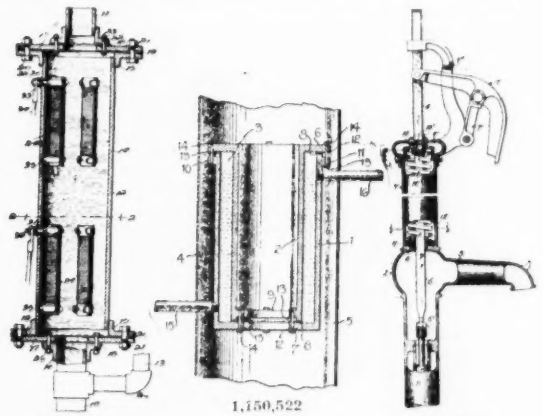
1,150,216. Supply-Valve. Daniel W. McNeil, Cincinnati, Ohio, assignor to The John Douglas Company, Cincinnati, Ohio, a Corporation of Ohio. A valve comprising a casing having an inlet passage, tapered throughout a portion of its length and converging in the direction of flow through the valve, an open-ended plunger valve-receiving extension axially alined with the passage and having outlet ports formed therein, and a diaphragm located between the passage and the extension and having a port axially alined with the extension and the passage, and a plunger valve removably mounted within the extension for controlling the delivery through the port in the diaphragm, in combination with a separately formed flow-impeding worm removably mounted in the tapered portion of the inlet passage.

1,150,390. Electric Water-Heater. Rollie C. Sage, Arrowrock, Idaho. An electric heater comprising a support of electric conducting material, pairs of holders of electric conducting material attached to the support, one

holder of each pair being electrically connected with the support and the remaining holders being electrically insulated from the support, a lead wire connected with the support, a lead wire for each of the electrically insulated holders connected thereto, and a plurality of electric heating units having contact terminals to make electric connection with the pairs of holders, said units being detachably connected with the support.

1,150,522. Water-Heater. Samuel E. Jackson, Great Bend, and Arthur P. Barnes, West Mineral, Kans. A water heater of the character described, comprising an outer shell formed at one end with an inwardly extending annular flange projecting from one extremity of the shell, inlet and outlet pipes, entering said outer shell and supporting it, an inner shell concentric with the outer shell but having an exterior diameter greater than the interior diameter of the first named flange on the outer shell, said inner shell at one end having an inwardly extending annular flange spaced from the adjacent end of the shell and at its opposite end an outwardly extending flange overlying the adjacent end of the outer shell and extending over the outwardly extending flange of the outer shell, and fastening means passing through the flanges of the outer and inner shells and detachably engaging the outer and inner shells with each other.

1,150,871. Counterbalance Mechanism for Pump-Rods. Edward Mainwaring, Gotham, Wis. The combination with a pump having a cap-closed cylindrical head disposed above its discharge throat, an apertured web formed in the bore of the head above said discharge throat, a pump-rod extending through the head, an adjustable collar secured to the rod within and adjacent to the upper end of the cylindrical head, and a coiled spring within the head and interposed between the collar and web.



1,150,390. 1,150,522 1,150,871

1,150,963. Combined Faucet and Fountain. George H. Penrod, Eveleth, Minn. A drinking fountain comprising a body adapted to be screwed onto the end of a pipe, a plug threaded to seat in the bottom wall of the body portion centrally thereof, said plug being bored vertically to provide a valve seat, said plug having a vertical bore forming communication between the pipe and the bore and lateral bores forming communication between the bore of the plug and the interior of the body portion, a partition extending horizontally across the upper end of the body and having spaced openings extending therethrough, a mouth piece connected with the body portion above the partition and having a central outlet, a vertically disposed needle valve threadedly engaging through the central portion of the partition and having its lower end adapted to extend into the bore of the plug and to

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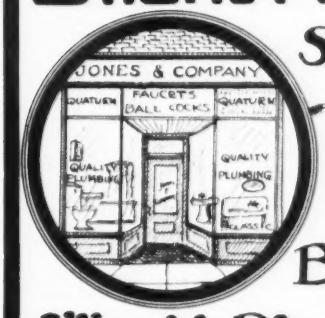

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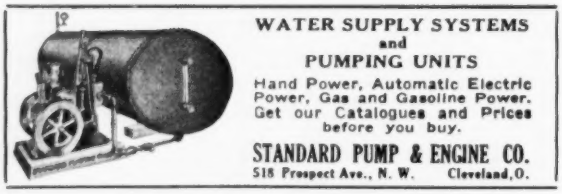
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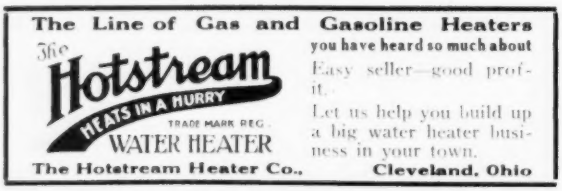
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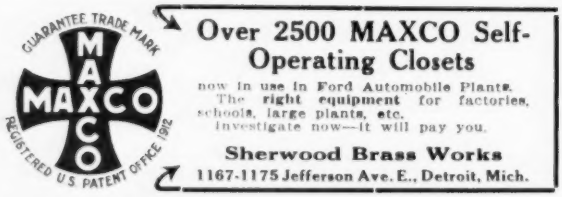
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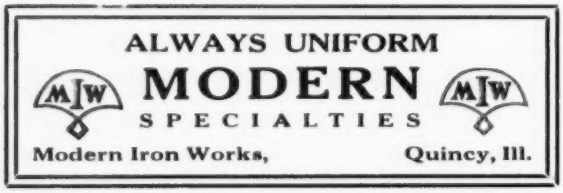

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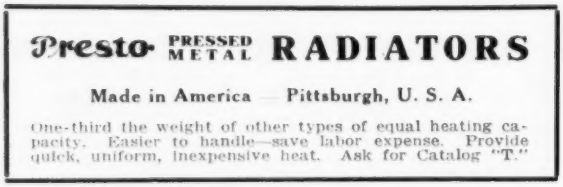
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makes pipe threading easy and reduces expense to a minimum.
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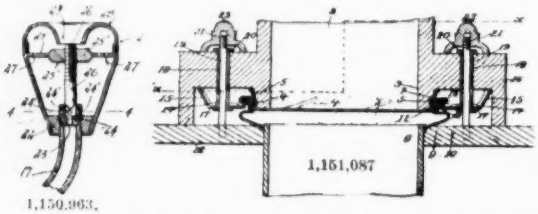
seat on the valve seat therein to close the ports in the plug, said valve being adapted for movement to and from the valve seat.

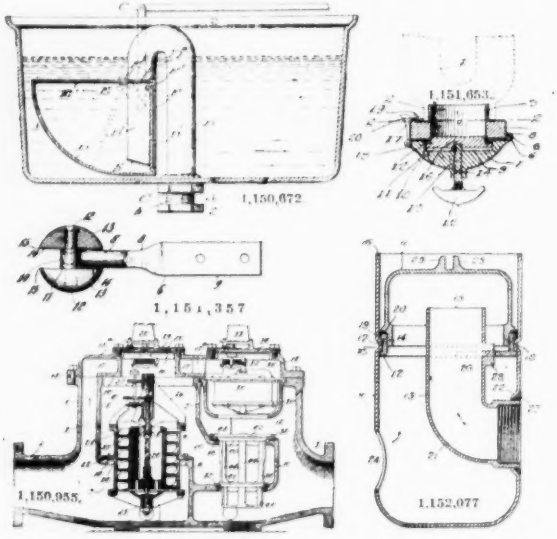
1,151,087. Water-Closet Connection. Joseph J. Cosgrove, Philadelphia, Pa. The combination with a water-closet bowl having a base, a soil pipe, and a ferrule connecting the closet and soil pipe, and having an external flange at its upper end, of clamps extending under the flange of the ferrule and bearing against the bottom of the closet bowl base, hollow bolts passing through the said clamps and said base and solid bolts passing through said hollow bolts and attached to the floor under the said base.



1,150,963.

1,150,672. Flush-Siphon. Merton H. Greeson, Tampa, Fla. A siphon comprising a siphon tube, an inlet box into which the inlet end of the siphon tube opens, having one wall and its base arcurately curved, and having an inlet opening through another wall, a plate hinged within the box to cover its said opening and moving inwardly therefrom, a shaft journaled across the upper portion of the casing and provided at one end with an external crank, and a starting paddle carried by the shaft and disposed and movable within the box to force fluid therefrom through the inlet of the siphon tube, and connections to the said shaft crank for oscillating the shaft.

1,151,457. Sewer-Pipe Cleaner. Frederick E. Grosvold, Eau Claire, Wis., assignor of one-half to David W. Johnson, Milwaukee, Wis. A sewer pipe cleaner, comprising a stem, revoluble block swiveled on one end of the stem and provided with diametrically oppositely positioned trunnions, and hemispherical cleaner members journaled



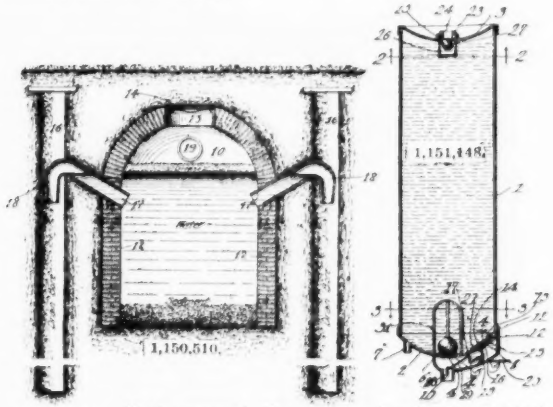
on the trunnions and having their flat faces extending toward each other, said clean members being positioned to form approximately a spherical end to the stem.

1,150,955. Water-Meter. Lewis Hallock Nash, South Norwalk, Conn. In a combination meter, a casing hav-

ing two passages open to the same supply, a measuring mechanism in each passage, one of said passages being normally open to permit continuous flow therethrough, the other passage having a chambered extension projecting into the passage of continuous flow, said extension being provided with oppositely disposed valve seats, connected valve plates co-operating with said seats and having differential areas within the extension, and one of said valve plates having an increased area available to the pressure in the extension when the valves are moved to open position.

1,151,653. Waste-Pipe-Trap Plug. Michael Belfry, Chicago, Ill. A plug comprising a discharge nozzle adapted to be secured in a pipe, said discharge nozzle having a circumferential flange on its lower end, a hinge member secured to the outer face of said flange at the lower edge thereof, a cap secured to said hinge member, said cap having a recess in its upper face, a disk resting in said recess and engaged in the end of said discharge nozzle, said disk having an annular flange, a gasket positioned between the last mentioned flange and the face of the flange of the discharge nozzle to form an air-tight connection between the same, a clamping screw threaded through said cap and engaged with the under face of said disk to clamp the same in the lower end of the discharge nozzle, a hook pivoted to said cap opposite the hinge member and engaged over the flange of the discharge nozzle, and a locking lug mounted upon the upper face of said flange of the discharge nozzle to prevent disengagement of the hook.

1,152,077. Plumber's Trap. John H. Carr, Everett, Mass. A trap comprising a casing composed of soft ductile metal and having a rim at its upper end, a cap for said casing, a cap-receiving ring arranged within said casing and a substantial distance below said rim, said ring having a circumferential groove and said casing having an internal annular offset portion occupying said groove, said ring and cap having co-operative connecting screw-threads, and an outlet pipe joined with said casing below said ring and projecting into said casing and ring, the receiving end of said pipe being above the screw-threads of said ring, and the rim of said casing being above the receiving end of said pipe.



1,150,510. Underground Cess-pool. Benjamin F. Ellis and George D. Greene, Los Angeles, Cal. A cess-pool provided with a man-hole, an inlet to said cess-pool located near the top thereof, a vertical drain bore adjacent to said cess-pool, and a drain connection pipe between said cess-pool and drain bore.

1,151,148. Flushing-Tank. Mark Ainsworth, Kansas City, Mo., assignor of one-half to Garrett S. Kieffer, Kansas City, Mo.

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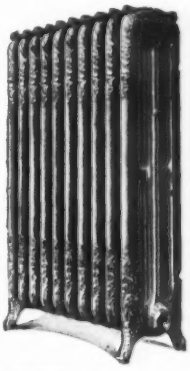

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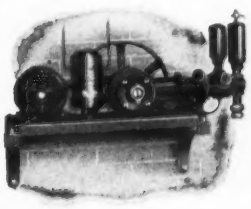

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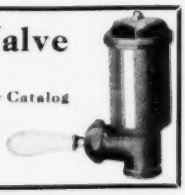

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